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## A DISTRIBUTIONAL LIST OF THE BIRDS OF MONTANA

WITH NOTES ON THE MIGRATION AND NESTING  
OF THE BETTER KNOWN SPECIES

BY

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#### NOTE

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For information as to either of the above series, address the Club Business Manager, W. Lee Chambers, Eagle Rock, Los Angeles County, California.

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## INTRODUCTION

THE ORNITHOLOGY of Montana, as compared with that of most other western states, is still in a primitive condition. While the earliest explorations and reports were made at about the same time as those of other western states, ornithological work since that time has not kept pace with what has been done elsewhere. Settlement of the state, until recently, has been slow, and there have been comparatively few resident ornithologists. Little collecting has been done. *Series* of specimens are almost unknown. Most of the specimens that have been collected are scattered through private collections. The results of much of this field work have never been published, and when they have, identifications have often been rather loosely made. For these reasons the present list cannot compare in either completeness or detailed accuracy with other recently published state lists. There is much of importance yet to be learned of the local distribution of even the commoner species. Sub-specific status is in many cases unsettled. The future will probably see many changes and additions on the basis of the present list, and it is hoped that its publication will stimulate work that will sooner bring these changes to accomplishment.

The portion of this paper which is based on my own field studies is the result of five years of almost continuous work in various parts of the state, from 1908 to 1913, as well as two additional summers, at Flathead Lake and in the Glacier Park, in 1914 and 1915. I have supplemented the results of this field work with a careful study of all the published records that I have been able to find. The bibliography published with this list is the result of eight years of compilation. I have examined nearly all of the publications listed, and have used all of the records in them which have proven of value in working out distribution, or times of nesting and migration. References to these various sources of information are given in the text. Where records are without reference, they are from my own, hitherto unpublished, notes.

In addition to these sources of information I have been fortunate in securing from a number of other ornithologists manuscript lists of birds observed by them in various parts of the state. Without these lists, my work would have been so far from complete that it would, perhaps, not have been worth printing. I have referred to these lists in the text with the surnames of the contributors. The full names of the latter, with acknowledgements, are given in the paragraphs immediately following.

Mr. Bernard Bailey, formerly of Corvallis, Montana, now of Elk River, Minnesota, has sent me a very complete list of the birds observed by him in the Bitterroot Valley. This comprises almost the only data I could obtain from that part of the state. Mr. A. D. DuBois, of Dutton, has sent me much information on birds observed both at Dutton and at Belton, where he spent two summers. I am also further indebted to him for the use of a number of very excellent photographs, which do much to make this paper attractive. Lieut. Joseph Kittredge, Jr., formerly located at Missoula with the Forest Service, and later in France with the regiment of Forest Engineers, has furnished notes from Missoula and from many other parts of the state which his previous work gave him opportunity to visit. Mr. Nelson Lundwall, of Bozeman, has sent me the records of several species new to the Gallatin Valley, which are particularly interesting as extreme western records in the state. Mr. J. L. Sloanaker, of Kalispell, has sent me many notes on birds in that vicinity and at Flathead Lake. His notes are particularly valuable, as they supplement the previous knowledge of summer birds in this region with knowledge of those species which occur in the migrations and in winter. Mr. Gerald B. Thomas, of Billings, whose friendship I made at Bozeman during my first year in the state, has sent me the most recent of these manuscript lists, relating mainly to the vicinity of Billings, a portion of the state from which very little was previously known. His notes on the breeding water birds of the lake basin country north of Billings are of unusual interest; they have added many valuable records and several new species to the state list. Mr. C. F. Hedges, of Miles City, who collected a large number of the birds now at the University of Montana in Missoula, has renewed his interest in birds and has sent me the results of his recent collecting. These results have added two new subspecies to the state list, and have widened the known ranges of several other species and subspecies.

In addition to the above lists, received direct from field observers, I have received encouragement and assistance from ornithologists whenever it has been needed and wherever I have turned. Dr. Louis B. Bishop has aided me from the first, identifying subspecies of nearly all the birds I have collected in the state, and more recently those which Mr. Hedges has sent me, and granting me the use of both his library and collection in my search for records. The late Wells W. Cooke, to whom I wrote of my intention to write a Montana list, less than two months before his death sent me not only the information for which I first wrote him but also a long list of references to publications on Montana birds, many of which were new to me. It is interesting to know that Cooke once contemplated living in Montana, and that he had gathered these references with the idea that he might himself some day write a state list. This contribution did much, both to complete my bibliography of the state, and to give me previously unknown sources of information. Since Prof. Cooke's death, Dr. H. C. Oberholser has sent me information from the records of the Biological Survey, whenever I have requested it, showing the same spirit of interest and helpfulness. To Prof. Morton J. Elrod, of the University of Montana, I am indebted for the opportunity to spend two summers in bird study

at the University Biological Station at Flathead Lake, and for the privilege of examining the collection of birds at the University.

Montana is a state that is now being developed very rapidly. In the last ten years many changes have taken place, changes that have had a great effect on its bird life. Many of the most interesting species are becoming rare. The Trumpeter Swan, the Sandhill and Whooping cranes and other picturesque species are no longer common. The day is fast approaching when the Long-billed Curlew and the Sage Hen will be very rare, even in the more remote localities. The cause of these changes in bird life is the rapid settlement of the country, involving the building of railroads, and the clearing, plowing and irrigating of the lands. Even though these threatened species are protected by law, they must go sooner or later, for the cause of their scarcity is not so much the shooting or other persecution on the part of man, as his mere presence, his occupation of the ground where they had been accustomed to breed. Species like the Killdeer can adapt themselves to the new conditions, and can become even more abundant in the presence of man than before. But such birds as the Curlew cannot accustom themselves to the change, and there seems to be no way that man can help them. They are doomed to become rare, perhaps totally extinct. The study of these changing conditions and their effects on bird life is an important one for the future ornithologist in Montana.

Another sort of change that is taking place, that causes many puzzles to the student of distribution, is that which concerns geographical names. The map accompanying this list is taken from the most recent one I could obtain, one dated 1917. But no map can keep up with the rapid changes in names that are taking place. New towns appear, and often older towns, remote from newly built railroads, become deserted and remain as memories only. It is already difficult to find the location on accessible maps of many of the older records. Counties have been created in considerable number in the past few years. The area covered by Mr. E. S. Cameron's work, including Custer and Dawson counties, now covers seven counties, Richland, Dawson, Wibaux, Prairie, Custer, Fallon, and Carter. In the text I have referred to this area still as "Custer and Dawson counties" because it was not possible in such cases to locate the Cameron records more closely. However, a large majority of these records, those located at Terry and Fallon, are in what is now Prairie County. I have shown on the map, wherever it was possible to do so, all the important localities mentioned in the text.

In the writing of this list I have followed the American Ornithologists' Union *Check-List*, 1910, and its supplement, in nearly all particulars. In the use of certain English names I have departed somewhat from the authority of this list. I have added to names of eastern subspecies and species, the adjective "eastern" when the *Check-List* does not do so. Thus, *Astragalinus tristis tristis* is the Eastern Goldfinch and *A. t. pallidus* the Western Goldfinch. To call the eastern form simply Goldfinch is unsatisfactory to any ornithologist whose field experience is wider than the range of the eastern subspecies. In the same manner this principle may apply to species in some cases. *Sialia sialis* should not be *the* Bluebird, but the Eastern Bluebird. At least this is so from the standpoint of a resident of Montana, where *S. currucoides* is *the* Bluebird. I have

made this change believing that it improves and betters the list, and with the hope that a similar change will be adopted by the makers of the *Check-List* themselves when the next edition is published.

While the work of compiling a list such as the present one is often tedious and irksome, yet the original field work on which it is based has given me some of the greatest pleasures that I have had, pleasures that only the field ornithologist, born with the love of wild birds, can appreciate. Thus, as I have gone over these pages, recording references and migration dates, or working out ranges, I have relieved the tedium by living over in retrospect many happy hours in the field, in what is ornithologically one of the most interesting and wonderful of our states. I have seen again the rolling prairies on a bright June morning, with countless McCown Longspurs, rising into the air, and parachuting down into the grass, or a male Curlew, charging with loud protest toward the man who has ventured near his nest. I have seen the prairie ponds, dotted with ducks of many species, with pink and white Avocets wading about the muddy shores, and Coots and Grebes swimming among the tules that border the farther side. On the same prairies, bleak with the winter snow and cold, I remember the whirling flocks of Snow Buntings, Horned Larks, or Rosy Finches, or a single Snowy Owl, sitting on a rise of ground, and flying silently away at my approach. The ever-changing mountains have been pictured in my memory; the wonderful little Dipper, diving under a waterfall and emerging to sit on a wet stone and sing, the friendly Rocky Mountain Jays, who came at the noon hour to share my lunch in the pine forest; the cock Franklin Grouse, sitting in a dark green spruce top, opening and closing the red "comb" over his eye; the Solitaire rising in flight-song above the mountain peaks, his voice ringing loudly and melodiously through the clear air; and the sweet evening chant of the White-crowned Sparrow in the willows near our camp by the lake shore. However scientifically "cut and dried" the text of this list may seem, back of it is a living Montana, teeming with interesting and wonderful bird life, worthy of greater attention from the future ornithologist. To those who find pleasure in the birds of Montana in the future, I hope that this list will be a help, and an inspiration to publish whatever of their observations will make knowledge of our birds more perfect.

ARETAS A. SAUNDERS.

*Norwalk, Connecticut, December 2, 1919.*

## DISTRIBUTIONAL AREAS IN MONTANA

IN discussing the factors that influence the distribution of birds in Montana it is first necessary to emphasize the incompleteness of our present knowledge of this subject. I have been unable to visit all parts of the state myself, and I find the writings of others frequently inadequate in the details which would help one to determine life-zones or to learn much of either faunal or associational distribution. However, I feel that the knowledge that has been obtained on this subject is sufficiently valuable to warrant a digest of it here.

As in other regions the factors concerned can be most easily comprehended by considering three kinds of distributional areas, faunal, zonal and associational. In Montana the larger faunal areas are primary ones, rather than the zonal. Even to the superficial observer crossing the state on one of the trans-continental railways the division of the state into two large areas is apparent. These are the prairie region of the eastern half and the mountain region of the western. The line between these two areas crosses the state diagonally from northwest to southeast, and the prairie region is about twice the area of the mountain region.

The prairie region is characterized by such breeding birds as the McCown Longspur, the Chestnut-collared Longspur, and the Clay-colored Sparrow. Other species found throughout the eastern United States find the western limits of their normal breeding range in this region. Such species are the Red-headed Woodpecker, Bronzed Grackle and Brown Thrasher. Other eastern species migrate regularly through the prairie region, but are rare or unknown west of it. Such are the Myrtle and Blackpoll warblers.

The mountain region is characterized by a large number of Rocky Mountain species such as the Richardson Grouse, Lewis Woodpecker, Rufous Hummingbird, Black-headed Jay, Western Tanager, and Mountain Chickadee. There are a certain number of western species that range over both regions and are found well distributed throughout the state, such as the Magpie, Black-headed Grosbeak and Western Meadowlark.

My personal acquaintance with the prairie region is less than with other parts of the state. Certain large areas in it have never been studied ornithologically, at least, if so, the results have not been published. For these reasons the statements made about this region will probably be subject to considerable future modification. The region may be divided faunally into three parts. These are the southern region, the northeastern and the northwestern.

The southern prairie region extends over the southeastern part of the state, west to the foothills of the mountains in Carbon, Sweet Grass and Meagher counties, and north about to the divide between the Yellowstone and Missouri drainages. The region is characterized by the regular occurrence of such species as the Pinyon Jay, Western Lark Sparrow, Western Field Sparrow and White-winged Junco, and by the western limits of such eastern species as the Black-billed Cuckoo, Chimney Swift and Ovenbird.

The northeastern prairie region lies north of the southern, extending west to the middle of Choteau and Fergus counties. It is very little known except

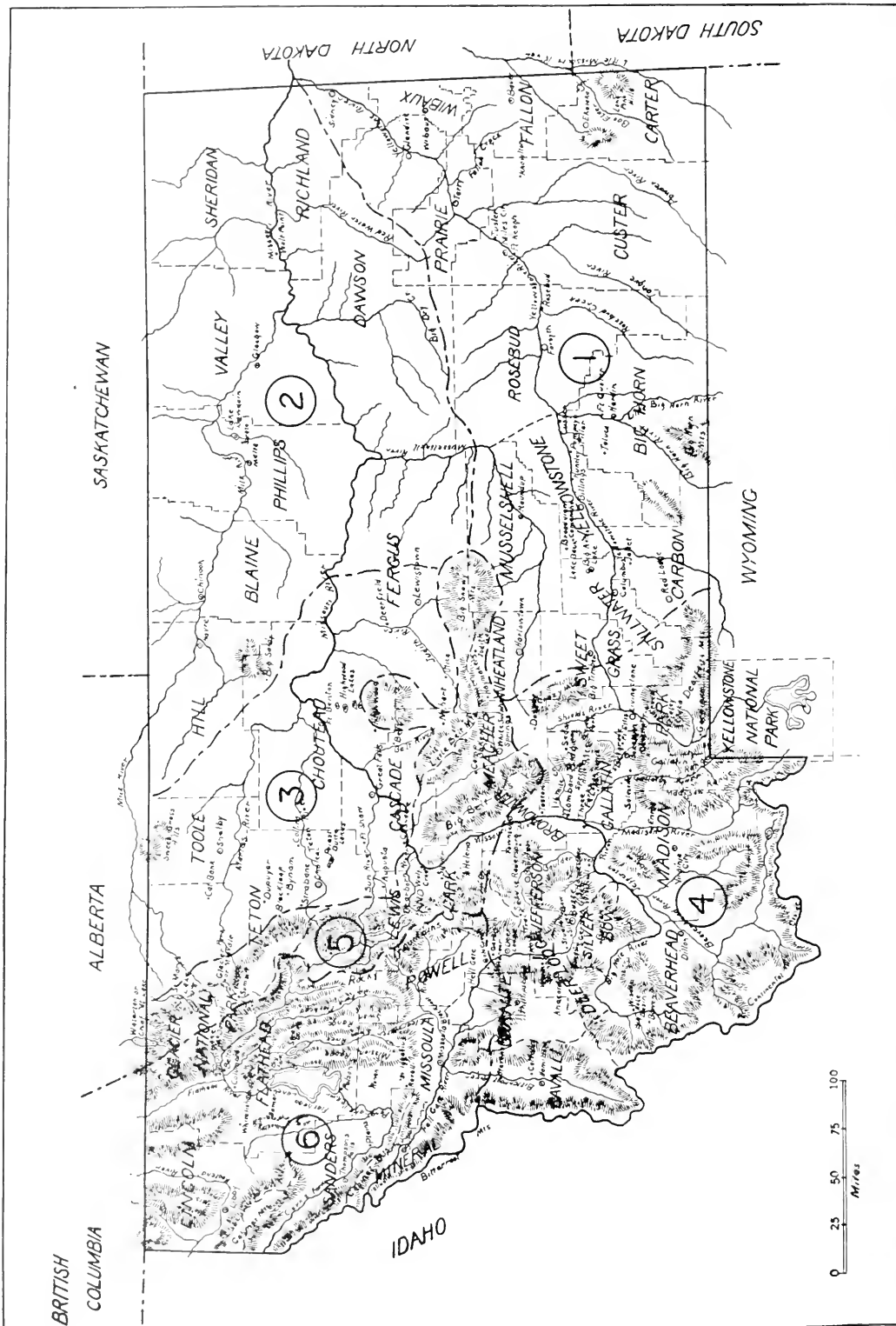


Fig. 1. MAP OF MONTANA SHOWING FAUNAL AREAS. 1. SOUTHERN PRAIRIE REGION. 2. NORTHEASTERN PRAIRIE REGION. 3. NORTHWESTERN PRAIRIE REGION. 4. SOUTHERN MOUNTAIN REGION. 5. NORTHEASTERN MOUNTAIN REGION. 6. NORTHWESTERN MOUNTAIN REGION.

through the writings of early explorers. It is characterized mainly by the absence of certain species, rather than by the presence of new ones. All those mentioned as characteristic of the southern prairie region are lacking or rare here. The region differs from the northwestern prairies by the presence of sage-brush and of the Sage Hen and perhaps other sage-loving species. It also differs in the rarity and perhaps entire lack of the Sprague Pipit and Baird Sparrow, these species being found both east of this region in North Dakota and west of it in the northwestern prairie region (Cones, 1874b, pp. 559-563). It differs materially from the southern prairie region in the greater abundance of ducks and other breeding water birds, especially along the Milk River.

The northwestern prairie region occupies the western half of Choteau and Fergus counties, nearly all of Toole, Teton and Cascade counties, and the northeastern corner of Lewis and Clark county. It differs from both the other prairie regions in the entire absence of sage-brush and therefore of such sage-loving species as the Sage Hen. It lacks the species characteristic of the southern prairies but is enriched by a greater abundance of water birds, such as ducks, grebes, avocets and phalaropes, and by the abundance of the Sprague Pipit, and by the occurrence of the Baird Sparrow as a breeding bird.

Like the prairies, the mountain region may be divided into three faunal areas, the southern, northeastern and northwestern. In each of these three regions a division of the areas into mountains and mountain valleys is at once apparent. The mountain valleys are flat or rolling country, from 3,000 to 5,000 feet in altitude, treeless except along the borders of streams, and in many respects similar in character to the prairie region. The mountains are for the most part timbered with coniferous forests and broken into high ridges and peaks, steep slopes and deep steep-sided canyons. They begin at from 3,000 to 5,000 feet, and extend up to 11,000 feet in some places.

The southern mountain region extends from the western limit of the southern prairie region in Carbon and Sweet Grass counties, westward to the western border of the state, and northward to include western Meagher and Broadwater counties and southern Powell County. The Big Horn Mountains and other smaller areas isolated within the prairie region may also be considered outlying portions of this region. The region crosses the continental divide in Silver Bow, Deer Lodge and Powell counties, the divide here having little effect on the fauna. Whether it should be extended to include Granite and Ravalli counties is uncertain. The birds of Ravalli County show a condition rather intermediate between the southern and northwestern mountain regions. The southern mountain region is characterized by southern species, such as the Williamson Sapsucker and the Green-tailed Towhee. The breeding range of the Pink-sided Junco defines it well.

The northeastern mountain region occupies a narrow strip of country west of the prairies and east of the continental divide. It includes most of Lewis and Clark County, and the mountainous portions of Cascade and Teton counties. It is characterized by lack of the southern and western forms of the other mountain regions, and by the breeding in small numbers of such northern species as

the Bohemian Waxwing and Hudsonian Chickadee. The Montana Junco replaces the Pink-sided as it does in the northwestern region.

The northwestern mountain region includes the rest of the state. It lies entirely west of the continental divide, from the western boundaries of the northeastern mountain region and the northern boundaries of the southern mountain region, westward and northward to the limits of the state. It might readily be termed the humid mountain region, for it is much more humid in climate than any other part of the state. It is characterized by a good many species and subspecies, such as Townsend Warbler, Chestnut-backed Chickadee, Varied Thrush, Merrill Song Sparrow and Dusky Horned Lark. It really forms part of a region which includes northern Idaho and northeastern Washington, a region where the rainfall is considerably greater than in surrounding areas both eastward and westward, and where many Pacific Coast species find their eastern limits. A more detailed study of the region, with a greater amount of collecting, ought to bring out many interesting points and probably show some new subspecies.

The life-zones found in Montana are the Upper Sonoran, Transition, Canadian, Hudsonian and Alpine-Arctic. These zones cross the faunal areas, their boundaries being mainly at right angles to the mountain slopes. The Upper Sonoran occupies the areas of lowest elevation, and the Alpine-Arctic those of highest. Since these zones are better characterized by their vegetation, particularly their trees, than by their birds, I shall give the species of trees which characterize them in Montana, to serve as an aid to others in studying this phase of distribution.

The Upper Sonoran zone occupies the lower valleys of the state, mainly the areas below 4,000 feet in elevation east of the continental divide, and those below 3,000 feet west of it. It occupies nearly all of the southern prairie region, and extends in long narrow strips along the rivers to the westward. While the map of life-zones accompanying the 1910 A. O. U. *Check-List* shows this zone only in the southern prairie region, I am inclined, after a study of Cary's (1917) recent paper on Wyoming life-zones, to think that this zone also occupies certain of the valleys in the mountain region which are of low elevation. If such species as the Mourning Dove, Bullock Oriole, Arkansas Kingbird, Lazuli Bunting and Catbird are characteristic of the Upper Sonoran in Montana, as they are in Wyoming, then there must be many areas of upper Sonoran within the mountains. I believe that the Missonri Valley in Broadwater County, and areas along the Missouri as far south as Three Forks and perhaps up the Jefferson and Madison, should be considered Upper Sonoran. I believe this is also true of areas west of the continental divide, up the Hell Gate River at least as far as Missoula, and on the Pend-Oreille nearly to Polson, and perhaps above Flathead Lake about Kalispell. However, it seems quite certain that the species last named above breed locally in the Transition. As in Wyoming, it is true that the line between these two zones is indefinite and difficult to draw. There are no very characteristic trees in this zone. Junipers and cedars, which are characteristic in other regions, are scarce, and grow quite as abundantly in the Transition as in this zone. Cottonwoods are the commonest trees, but are also common in the

Transition. One tree, the box elder (*Acer negundo*) is found only in this zone, in the eastern part of the state, and the green ash (*Fraxinus lanceolata*) occurs sparingly in the same region. But these two trees are not found in all the Sonoran areas of the state.

The Transition zone occupies the largest area of any of the zones. There are easily observed two definite sorts of Transition, that of the prairies and mountain valleys, and that of the lower mountain slopes, foothills and pine hills. All the faunal regions of the state contain areas of this zone. In the prairies and mountain valleys the chief trees are the cottonwoods (*Populus balsamifera*, *P. angustifolia* and *P. trichocarpa*), the last named only in mountain valleys on the west side of the continental divide. In the foothills and lower mountains the principal trees are the yellow pine (*Pinus scopulorum*) and the Douglas fir (*Pseudotsuga taxifolia*). The yellow pine is the only one thoroughly characteristic, as the fir is found also in the Canadian zone. Engelmann spruce (*Picea engelmanni*) occurs to a limited extent in this zone, and limber pine (*Pinus flexilis*) and tamarack (*Larix occidentalis*) are common in it in certain localities.

The chief Transition areas in the southern prairie region are the pine hills. These are flat-topped prairie buttes, whose tops are open grass land, but whose sides are clothed with yellow pine, usually scattering and sparse, but occasionally, as in the Long Pine Hills of Carter County, forming fairly dense forests of tall trees. These pine hills mark isolated tracts of Transition surrounded by Upper Sonoran areas.

The two northern prairie regions are entirely Transition, and the greatest part of the mountain valleys and all the lower slopes and canyons also belong to this zone. The prairies and valleys are mainly grass land, with sage-brush areas in some parts of the state, and with cottonwood groves and willow thickets along the streams. The foothills are partly grass and partly timber, with occasional areas of forest of either yellow pine or fir. East of the continental divide the Transition zone occurs from about 4,000 to 6,000 feet in the southern part of the state, and from 3,500 to 5,500 in the northern. West of the divide, where the valleys are generally lower, this zone goes down to 3,000 feet, even in the northern part of the state.

In the northwestern mountain region conditions occur which make it difficult to define the limits of this zone. The humidity of slopes facing west is much greater than those facing east. This causes conditions much like the Canadian zone at elevations as low as 3,000 feet, while not many miles away are much less humid areas, where the elevation is no lower, but which I strongly suspect are Upper Sonoran. Thus, on the east shore of Flathead Lake, directly at the base of the Mission Mountains, are dense forests of Englemann spruce, where Canadian birds such as the Golden-crowned Kinglet and Winter Wren breed. On all of the mountain slopes surrounding these areas are Transition forests of yellow pine, fir and tamarack, extending at least 1000 feet higher. Both above Flathead Lake and below its outlet, are areas of the same elevation as these, inhabited by Upper Sonoran species, such as the Grasshopper Sparrow, Bullock Oriole, and Arkansas Kingbird. These phenomena are brought about either by soil or atmospheric moisture conditions, rather than by changes in temperature. Therefore

they should be considered local areas within one life-zone simulating those of another, rather than areas really belonging to that other life-zone.

The Canadian zone is found in all the higher mountains of the western part of the state. It occurs from about 5,500 feet in the north and 6,000 in the south to 7,500 or 8,000 feet. Its characteristic tree is the lodgepole pine (*Pinus mur-rayana*). With this tree are found Douglas fir, Engelmann spruce, and alpine fir (*Abies lasiocarpa*). West of the divide several other species are found, such as western white pine (*Pinus monticola*), western hemlock (*Tsuga heterophylla*), arbor-vitae (*Thuja plicata*), and lowland fir (*Abies grandis*). Some of the birds typical of this zone are the Franklin Grouse, the three-toed woodpeckers, Hammond Flycatcher, Rocky Mountain Jay, Lincoln Sparrow, Pileolated Warbler, and Mountain Chickadee. There is much less difference in the conditions of this zone on the two sides of the divide than in the case of the Transition zone.

The Hudsonian zone occurs in all the higher mountains of the western half of the state. It occupies comparatively small areas on the higher mountain slopes, varying little in different parts of the state. It lies from 7,500 to 8,000 feet up to 9,000 or 9,500, but its upper limit varies greatly. The zone is easily recognized by the stunted and often misshapen character of the trees. It occurs from the point where the trees begin to take on this character, up to timberline, the limit of tree growth. The species of trees found in this zone are alpine fir, spruce, limber pine, and white-bark pine (*Pinus albicaulis*). The last species is the only one entirely characteristic of the zone. The one characteristic bird is the Rocky Mountain Pine Grosbeak. The Clark Nutcracker is usually more abundant in this zone than elsewhere, and other species, found chiefly in the Canadian zone, range up into this zone. Such species are the Montana and Pink-sided juncos and Audubon Warbler.

The Alpine-Arctic zone occupies the tops of the highest mountains above timber line. In most parts of the state it covers only small scattered areas on the peaks of the highest mountains or along very high ridges. Northward it covers a larger proportion of the mountain area. It can be best observed in the Glacier National Park. The birds characteristic of this zone are the White-tailed Ptarmigan, the Rosy Finches, and the Pipit. These birds have been found breeding only in the northern part of the state, so that this zone in the south, so far as it is known, has no characteristic breeding birds. It is probable that the Black Rosy Finch, however, breeds in this zone in the southwestern ranges.

The associational areas are those which have the same conditions of soil, moisture or exposure, and hence a certain association of plants and animals which depend either on those conditions directly, or on other forms of life in the associations. Some associations are local in distribution, while others are found over the greater part of the state. Some are limited to a single faunal area, while others are found in several such areas and often in more than one life zone. A complete study of associational distribution in the state is not possible at present, but the following data on the more important and more widely distributed associations should be of value.

Associations are the most fundamental of distributional areas, for it is of

them that faunal and zonal areas are composed. The immediate, local distribution of life in a given locality is determined by the associations. We may classify all associations conveniently as follows: Grass associations, water associations, rocks, shrubs, trees, and artificial associations, the latter produced by the presence of buildings, bridges and other similar man-provided structures.

Grass associations may be divided into three main kinds, meadows, benches and foothills. A more detailed study would undoubtedly show many more than this, particularly if the study were concerned with the distribution of some other class of animals than birds. These three, however, are the main ones, most easily recognizable, and most distinct in the bird species inhabiting them.

Meadows are lands that are near streams and that are moist in soil, though seldom wet or swampy. They are agricultural in character, and the greater part of them are now under cultivation, or cut over for hay each year. They are clothed with tall wild grasses of such genera as *Calamagrostis* and *Festuca*, and,

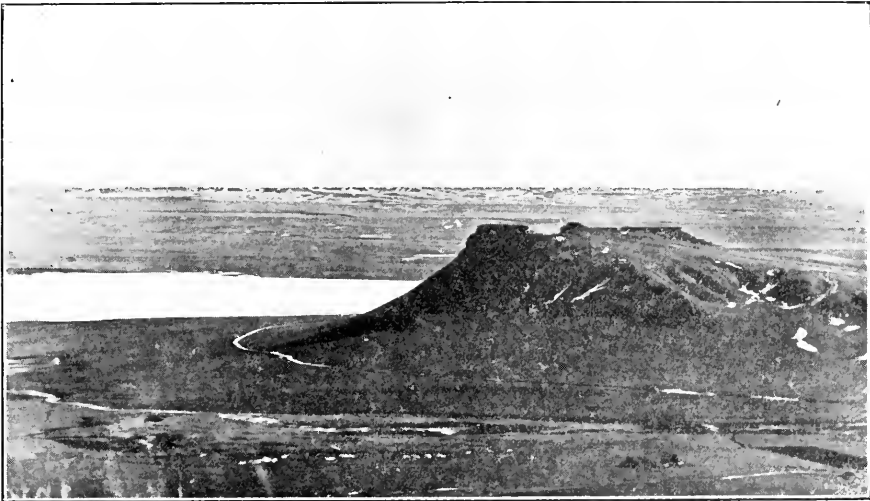


Fig. 2. PRIEST BUTTE, TETON COUNTY; MARCH, 1912. TRANSITION ZONE. THE VIEW ILLUSTRATES GRASS BENCHES, A PRAIRIE LAKE AND A BUTTE.

where cultivated, *Phleum* and *Agrostis*. The characteristic breeding birds are Sharp-tailed Grouse, Bobolink, Meadowlark, and Savannah Sparrow. This association occurs mainly in the Upper Sonoran and Transition Zones, but I have seen large areas of it in the Canadian in some places. The most conspicuous of these isolated tracts is in White-tail Park, in Jefferson County, at an elevation of 7,100 feet, where the above named birds, supposedly Transition species, breed in meadows that are surrounded by lodgepole pines and spruces, the forests of these trees being inhabited by true Canadian species, such as Franklin Grouse and Mountain Chickadee.

In portions of the prairie region the meadows are alkaline in character, and form a somewhat different association. These areas are usually about the borders of alkaline ponds or in hollows in the prairies, where temporary ponds are liable to occur in wet weather. The grasses are shorter and coarser than in the

ordinary meadows, with many species of sedges (*Carex*) taking the place of the true grasses. In these areas the Savannah Sparrow, Chestnut-collared Longspur and Sprague Pipit are characteristic. Where these areas border ponds and become somewhat marshy in character, the Wilson Phalarope and several species of ducks are liable to be found breeding.

Benches (see fig. 2) are much dryer areas, chiefly found in the prairie region but also to some extent in the mountain region at low elevations. While these areas are mostly comprised in the flat-topped benches, they may be found on rolling prairie lands or sides of hills, the dry soil and character of the vegetation being the factors that influence bird distribution rather than the flatness of the ground. The grass on these areas is short, such species as gramma grass (*Bouteloua*) predominating. The one definite, characteristic species of this association, throughout the state, is the Horned Lark. In the prairie region the McCown Longspur is also abundant in it, and in thinly settled regions the Upland Plover and Long-billed Curlew.

Foothills occur mainly along the lower spurs of the mountains, in the Transition zone, and extend up to the limits of this zone on south slopes. The soil is more moist than that of the benches, and the grasses are of taller species, such as wheat grass (*Agropyron*) and bunch-grass (*Aristida*). Many species of wild flowers grow in this association, the most abundant and widely distributed being blue lupine (*Lupinus*). The two most widely distributed and characteristic breeding birds of this association are the Meadowlark and Vesper Sparrow.

Water associations are peculiar in that a large number of the species dependent on them are rare or local in distribution, and very few can definitely be said to be found regularly in any given association. Five water associations are easily recognizable, as found throughout large parts of the state. They vary considerably locally, but the general conditions of each one are about the same. These five are prairie lakes, mountain lakes, rivers, mountain streams, and cat-tail or tule marshes.

Prairie lakes (see fig. 2) differ from mountain lakes not only in location but also in the more significant fact that their borders are grass grown and without trees. They are found mainly in the prairie region of the state and are most abundant along the northern border. A large area of them in the southern part of the state is comprised in the lake basin region near Billings. They are found to some extent in the mountain region, even west of the divide, there being many of them on the Flathead Indian Reservation in northern Missoula County. The shores of these lakes form the breeding ground of large numbers of water birds, such as grebes, gulls, ducks and avocets. Perhaps the only species that is widely and universally enough distributed over the entire state to be thoroughly characteristic of this association is the Mallard.

Mountain lakes are bodies of water in the Transition or Canadian zone of the mountains, whose shores are bordered by evergreen forests. These lakes are also liable to have patches of willow thicket bordering their shores at the inlet or outlet. They are generally glacial in origin and often very deep. They vary greatly in size, Flathead Lake, the largest, being about thirty by fifteen miles in extent, while small lakes of the same general character may often be found

which are less than a hundred feet across. They are only found in the mountainous parts of the state, and are more abundant in the northwestern part of it, particularly in the Glacier Park, where there are said to be at least two hundred and fifty. As in the case of prairie lakes, the bird life of these lakes is very variable. One species, the Spotted Sandpiper, is characteristic of their shores, and may be practically always found about them. Other species are local, such as ducks (particularly tree nesting species, like the mergansers, golden-eyes and Buffle-head), the Canada Goose, Osprey, Kingfisher and Tree Swallow.

Rivers (see fig. 3) flow mainly through the prairie region and the mountain valleys. They are much varied in character, and might perhaps be divided into several stream-border associations, according to whether their banks were bordered by grass-meadows, cottonwood groves, or rocky cliffs. The birds breed-



Fig. 3. VIEW ON THE TETON RIVER, NEAR DUTTON, TETON COUNTY, MONTANA. GRASS-COVERED BENCH-LANDS IN THE FOREGROUND AND IN THE DISTANCE, AND COTTONWOOD GROVES BORDERING THE RIVER. TRANSITION ZONE. PHOTO BY A. D. DuBOIS.

ing along these rivers vary, and, as in the case of mountain lakes, the Spotted Sandpiper is the only species that is entirely characteristic. Other species found more or less locally along rivers are the Great Blue Heron, Killdeer, Kingfisher, Kingbird, and Bank Swallow. Where steep cliffs border the sides of rivers, some species nest in the cliffs, but since their presence is due to the rocks rather than the water, they should be considered as belonging to a rock association.

Mountain streams (see fig. 4) are somewhat similar to rivers, except that their current is swifter and that they contain frequent waterfalls and rapids. In some places well within the mountains the streams often take on the quieter character of rivers, and in such cases the one characteristic bird of river borders

and mountain lakes, the Spotted Sandpiper, is again sure to be present. The true mountain stream has but one characteristic bird, the Dipper, and that bird is sometimes absent if the stream is not clear. A second species found in this association in a few localities is the Harlequin Duck.

Cat-tail and tule marshes are not strictly water associations alone as they take their character from the vegetation that grows in the water. Cat-tails and tules really form two separate associations, but from the standpoint of bird distribution they are about alike. These associations are marshes where the water is from a few inches to a foot deep, grown with either cat-tails or tules standing in the water. The one most characteristic bird is the Red-winged Blackbird. Many other species are also found in this association, though they are more or less local in distribution. Grebes, the Black Tern, a few species of ducks, the Coot, Sora, Bittern, Marsh Hawk, Yellow-headed Blackbird and Marsh Wren are all liable

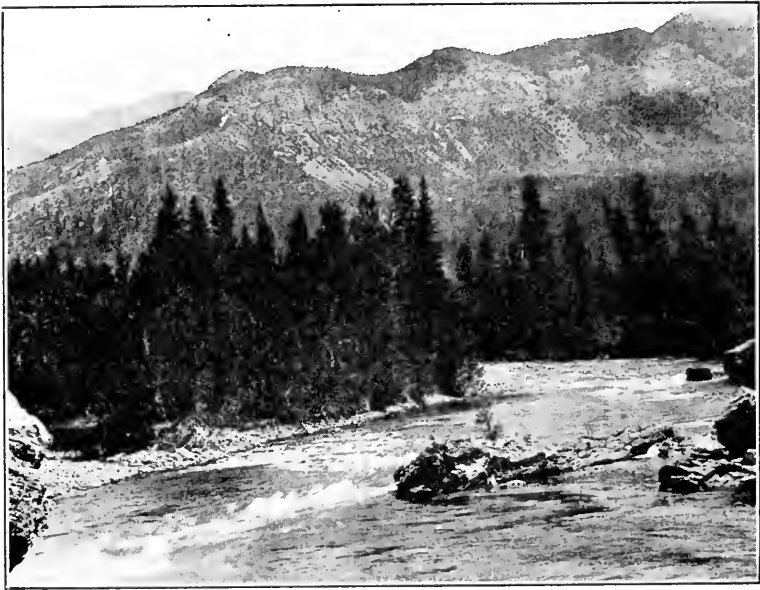


Fig. 4. ON THE SUN RIVER, LEWIS AND CLARK COUNTY; JULY, 1912. A MOUNTAIN STREAM AND SPRUCE FOREST OF THE CANADIAN ZONE IN THE FOREGROUND AND MOUNTAINS EXTENDING TO THE HUDSONIAN ZONE IN THE DISTANCE.

to be found nesting amid such surroundings. As far as my observations go, it has appeared that the Red-winged Blackbird prefers cat-tails, and the Yellow-headed, tules. Perhaps two associations should be recognized on account of this preference on the part of two characteristic species; but until more definite observations are made it would be better to keep them together.

Rock associations occupy comparatively small areas, but they definitely determine the distribution of a few species. These associations differ considerably in different parts of the state, and at different elevations in the mountains, ranging from the badlands in the eastern prairies to glacial moraines and precipitous mountain sides in the Alpine-Arctic zone. (See fig. 6.) But the distinctions

between the associations are not very clear. Badlands, prairie buttes, rim-rocks, cliffs along river canyons, steep mountain sides, talus slopes and moraines all attract certain forms of bird life. The Say Phoebe, Rock Wren and Cliff Swallow are abundant about the drier rocks of the prairies. White-throated Swifts occur locally. Violet-green Swallows are abundant in river canyons. The Duck Hawk and Prairie Falcon, the Western Redtail and Ferruginous Rough-leg, the Golden Eagle, Horned Owl and Raven all nest on more or less inaccessible cliffs. The Townsend Solitaire inhabits rock piles in the higher mountains, while about the glacial moraines above timberline the Gray-crowned Rosy Finch and, perhaps, the Black Rosy Finch, are to be found.

Shrub associations cover larger areas than any we have so far considered, except the grass associations, and they support a very much larger amount of bird life even than those. They are therefore of greater importance. In fact, taken acre for acre, I believe they support the greatest amount of bird life of



Fig. 5. A TRANSIENT PRAIRIE SLOUGH, TETON COUNTY, SUCH AS FORM BREEDING GROUNDS FOR MANY WATER BIRDS. ABOUT THIS ONE THE HORNED GREBE, SORA, WILSON PHALAROPE, KILLDEER, REDWINGS AND SAVANNAH SPARROWS NESTED. WHEAT STUBBLE IN THE FOREGROUND. TRANSITION ZONE. PHOTO BY A. D. DUBOIS.

any group of associations in the state. There are several different shrub associations, four of which are widely distributed and easily recognized. These are the sage-brush, willow thicket, wild rose and cinquefoil associations.

The willow thicket is the most important, being found over large areas and supporting the largest number of birds both as to species and individuals. It occurs from Sonoran to Canadian, and differs somewhat in the different zones. Some of the species breeding in this association at low elevations are the Traill Flycatcher, Magpie, Western Crow, Brewer Blackbird, Song Sparrow, Arctic Towhee, Black-headed Grosbeak, Yellow Warbler, Western Yellowthroat, Redstart, Catbird, Long-tailed Chickadee and Willow Thrush. At higher elevations

in the mountains these species disappear, and others, such as the White-crowned Sparrow, the Slate-colored Fox Sparrow, Lincoln Sparrow and Pileolated Warbler, take their places.

The sage-brush association is one of the most characteristic. It occupies broad flat or slightly rolling areas, mainly in the prairie region of the state, and



Fig. 6. VIEW NEAR SPERRY CAMP, GLACIER NATIONAL PARK, SHOWING THE TERMINAL MORaine OF A SMALL GLACIER. ALPINE FIRS GROWING IN THE FOREGROUND, A SMALL WATERFALL FROM THE GLACIER ABOVE THE MORaine, AND A PORTION OF THE GLACIER IN THE DISTANCE. HUDSONIAN AND ALPINE-ARCTIC ZONES. A SHORT DISTANCE ABOVE THIS POINT IS THE BREEDING GROUND OF PTARMIGAN, PIPITS AND ROSY FINCHES. AUGUST, 1915.

in places extends into the lower mountains on south slopes, where it borders upon the grass foothill and the Douglas fir associations. The larger areas of this association are rapidly being cultivated and the sage removed. Consequently the species dependent on it are becoming scarce. The characteristic species are the Sage Hen, the Clay-colored, Brewer and Sage sparrows, and the Sage Thrasher. Other species, such as the Brewer Blackbird and Mourning Dove, sometimes nest

in this association, and in the mountain foothills I have found nests of the Western Chipping Sparrow and Pink-sided Junco in sage-covered areas.

The wild-rose association consists of thickets of shrubs that occur on the sides of moist coulees on the prairies and about the foothills of the mountains. While the wild-rose is one of the most abundant shrubs, many others are found, such as currant and gooseberry (*Ribes*), buffalo-berry (*Shepherdia*), silver berry (*Elaeagnus*), snowberry (*Symphoricarpos*), and thorn (*Crataegus*). The most characteristic species of this association are the Wright Flycatcher, Magpie, Brewer Blackbird, Clay-colored Sparrow, Arctic and Green-tailed towhees, Lazuli Bunting, MacGillivray Warbler, Western Yellowthroat and Catbird.

The cinquefoil association is found mainly in the northwestern prairie region, where sage-brush areas do not occur. It consists of low scattered bushes of the shrubby cinquefoil (*Dasiophora fruticosa*), forming a growth that very much resembles sage. A few other shrubs, such as the buffalo-berry and silver berry, are found in small quantity with it. Its birds are the Marsh Hawk, Short-eared Owl, Sharp-tailed Grouse, Brewer Blackbird, Vesper Sparrow, Clay-colored Sparrow, and certain others. There being often bodies of water close by, ducks occasionally nest in this association. Many species which live upon the open grass areas of the prairie are liable to place their nests in this association because of the protection the shrubs afford.

Tree associations cover a larger part of the area of the state than any other group except the grass associations. They support a larger amount of bird life per unit of area than the grass associations and are therefore of greater importance in their influence on bird distribution. We may make two general divisions of the tree associations, broad-leaf trees and coniferous trees, though there is at least one well-marked association, west of the continental divide, that is a mixture of both. The broad-leaf tree associations are but two in number, cottonwood groves and aspen groves.

Cottonwoods are found along streams in the Upper Sonoran and Transition zones, mainly in the prairies and mountain valleys. (See fig. 3.) Four species of *Populus* are represented, *P. deltoides* in the eastern part of the state, *P. balsamifera* and *P. angustifolia* throughout most of the state, and *P. trichocarpa* west of the divide. While these species are the only trees, there is a considerable undergrowth of young cottonwood, willows, dogwood (*Cornus stolonifera*) and other shrubs. There are many species of birds breeding in this association, and bird life is usually abundant in it, particularly in small groves that occur at long intervals in prairie regions. Some of the most characteristic species are the Swainson Hawk, Horned Owl, Red-shafted Flicker, Kingbird, Western Kingbird, Western Wood Pewee, Least Flycatcher, Magpie, Crow, Bullock Oriole, Goldfinch, Cedar Waxwing, Red-eyed Vireo, Yellow Warbler, Redstart, House Wren, Long-tailed Chickadee and Robin.

The aspen grove is found chiefly in the lower mountains in the western half of the state, occupying the Transition and lower Canadian zones. It consists almost entirely of the aspen (*Populus tremuloides*), which forms small groves in somewhat moist soil in the lower mountains. The area of this association is not great, but there are a few species of birds that are characteristic of it and in

the breeding season are found nowhere else. These birds are the Warbling Vireo and Orange-crowned Warbler. Other species found in this association occasionally are the Red-naped Sapsucker, Hammond Flycatcher, MacGillivray Warbler and Robin.

The one association of mixed broad-leaf and coniferous trees is found in the northwestern mountain region, as about the shores of Flathead Lake. In this association the main trees are conifers, most of the broad-leaf trees being small ones which form an undergrowth beneath the conifers. The conifers are mainly yellow pine, Douglas fir and tamarack, and the broad-leaves are cottonwood, birch (*Betula papyrifera* and *B. fontinalis*), alder (*Alnus tenuifolia*) and a few smaller species that are hardly more than shrub size. The birds of this association are the Cedar Waxwing, Red-eyed and Warbling vireos, Audubon Warbler, Redstart, Eastern Chickadee, Olive-backed Thrush, and Robin.

The coniferous tree associations occur entirely in the mountains, except the yellow pine, which occurs on the slopes of the pine hills and prairie buttes in the prairie region, as well as in the mountains. The chief associations are yellow pine, lodgepole pine, limber pine, white-bark pine, Douglas fir, fir and tamarack, Engelmann spruce, and arbor-vitae. Western white pine also forms an association locally, west of the continental divide, but it is an association I have not seen and, except for the report that the Chestnut-backed Chickadee is found in it, I know nothing about it.

Yellow pine is entirely a Transition association, occurring in the pine hills of the prairie region and on the lower mountain slopes. Across the continental divide it is found mainly through the center of the state. East of the divide it is not found up to the upper limits of the Transition zone, but is entirely below 4,500 feet elevation. In southwestern Montana it is not found at all, the elevations in the lower mountains being too high. The southern limits of its range southward are on Sixteen Mile Creek in extreme northern Gallatin County, on the Boulder River south to Basin in Jefferson County, and on Pike's Peak Creek near Pioneer in Powell County. The northern limits of this association east of the divide are on the Dearborn River, in Lewis and Clark County, but west of the divide the association extends north into Glacier Park and probably to the northern boundary of the state. The distribution of this association accounts for the breeding ranges of its most characteristic species in the state, and they will be sought in the breeding season in vain in places where yellow pine is not found. These species are the Crossbill and Red-breasted Nuthatch, and west of the divide the Pileated Woodpecker. The Evening Grosbeak and Pygmy Nuthatch are probably also characteristic. Other species breeding in this association are the Sparrow Hawk, Hairy Woodpecker, Flicker, Western Wood Pewee, Cassin Purple Finch, Pine Siskin, Robin and Mountain Bluebird.

The lodgepole pine association is characteristic of the Canadian zone, being found entirely within that zone. (See fig. 7.) It consists of a rather dense forest of lodgepole pine, with practically no other trees. The forest floor is sometimes open and carpeted with pine needles and a few small plants such as a small red-berried *Vaccinium*; sometimes, especially where there have been forest fires, it is covered with down timber, and sometimes, in moist situations, with a

dense undergrowth of shrubs, such as alder, wild currant and mountain buffalo-berry (*Shepherdia canadensis*). These differences make different associations as far as some forms of life are concerned, but they seem to have little influence on the distribution of bird life. In fact this association has comparatively little bird life. It is important because it covers large areas, particularly in the southwestern part of the state, but most of its birds are very few in number, and found mainly about the edges of small open grass areas or "parks". There appear to be no characteristic species, all birds found in it being also found in other coniferous associations. The species most commonly found in it are the Hairy Woodpecker, Alpine Three-toed Woodpecker, Pine Siskin, Pink-sided and



Fig. 7. A LODGEPOLE PINE FOREST ON DIVIDE CREEK, SILVER BOW COUNTY; MAY, 1910. CANADIAN ZONE.

Montana juncos, Chipping Sparrow, Audubon Warbler, and Robin. The Rocky Mountain Jay is also seen most commonly in this association in summer, but I am not certain that it breeds there.

The white-bark pine association is found entirely in the Hudsonian zone. It consists of rather open groves of this tree, with a few other species, such as spruce and alpine fir. In many places, particularly in the southern part of the state, limber pine occurs with this species, and then it is exceedingly difficult to separate the two. This association has but one characteristic bird, the Pine Grosbeak. The Clark Nutcracker is more abundant in it than elsewhere, however. Other species that breed in it are the juncos, Cassin Purple Finch, Audubon

Warbler, and the Rocky Mountain Nuthatch. This is the only easily recognized tree association of the Hudsonian zone.

The Douglas fir association is one of the most important of the coniferous tree associations from the standpoint of bird life. It occurs in the Transition and Canadian zones. The firs form a rather open forest, mainly on north slopes in the lower foothills of the Transition, and on steep south slopes of rocky soil in the Canadian. A number of birds show a decided preference for this association over others, and most of the species breeding in the lodgepole pine are found in greater numbers in the firs. The characteristic species are the Olive-sided Fly-



Fig. 8. A SPRUCE FOREST IN GERMAN GULCH, SILVER BOW COUNTY; MAY, 1910. BREEDING GROUND OF ROCKY MOUNTAIN CREEPER, GOLDEN-CROWNED KINGLET AND WINTER WREN. CANADIAN ZONE.

catcher, Western Tanager and Ruby-crowned Kinglet. Others found in it are the Ruffed Grouse, Sparrow Hawk, Pygmy Owl, Hairy Woodpecker, the three-toed woodpeckers, Red-shafted Flicker, Hammond Flycatcher, Black-headed Jay, Clark Nutcracker, Chipping Sparrow, the juncos, Audubon Warbler, Mountain Chickadee, Olive-backed Thrush, and Robin. West of the continental divide, in the northwestern mountain region, a variation of this association is found in a mixture of fir and tamarack. The same species of birds are found in it, except that two northwest species, Cassin Vireo and Townsend Warbler, are added. At low elevations firs occur scattered through the foothills, bordering on either the

foothill or sage-brush associations, the fir association apparently slowly encroaching upon the others. In such situations species of the different associations are to be found together.

The Engelmann spruce association occurs mainly along the borders of mountain streams, or on moist slopes where springs are abundant. (See fig. 8.) It consists chiefly of spruce, with a small proportion of alpine fir, and west of the divide, at low elevations, of lowland fir. It is mainly characteristic of the Canadian zone, but occurs in some places in the Transition and in the lower Hudsonian, where the trees are stunted in growth and there is a greater mixture of alpine fir. It forms the darkest and most dense of the coniferous forests, usually with an undergrowth of small shrubs and of young spruce and fir. There are three characteristic birds breeding in this association, the Western Winter Wren, Rocky Mountain Creeper, and Golden-crowned Kinglet. I believe that the Sharp-shinned Hawk and the Goshawk also breed in it in preference to other locations. Most of the other mountain species that breed in both the Douglas fir and lodgepole pine associations are found in this one.

The limber pine association occurs in limited areas in the northeastern mountain region only, in the Transition foothills. It takes the place of the yellow pine, found in similar situations farther south. It consists of an open grove of misshapen and crooked trees, much like the white-bark pine of the Hudsonian in appearance. The trees grow in this manner, however, more because of the lack of moisture and the strong sweep of the winds, than because of the shortness of the growing season. This association is inhabited by a mixture of mountain and prairie species. No species is entirely characteristic, but the commonest ones breeding in it are the Swainson Hawk, Red-shafted Flicker, Western Wood Pewee, Clark Nutcracker, Pine Siskin, White-crowned and Gambel sparrows, Montana Junco, Long-tailed Chickadee, Robin, and Mountain Bluebird.

The arbor-vitae is another local association, found chiefly in moist situations of low elevation in the northwestern mountain region. It consists of arbor-vitae, mixed with spruce and lowland fir. It may be seen at its best about the shores of Lake MacDonald and other lakes west of the divide in Glacier Park. The birds breeding in it are mainly similar to those breeding in spruces, but there is also to be added to the list the Varied Thrush.

Artificial associations are those formed by buildings, bridges, fences, plowed fields, and various other man-wrought changes in the natural surroundings that have an influence on the distribution of bird life. Such changes are the direct causes of the scarcity or disappearance of certain species, of which the Long-billed Curlew and Sage Hen are conspicuous examples in Montana. On the other hand they cause certain other birds to be more abundant, by providing nesting sites for them or supplies of food, where such did not exist before. Without attempting to classify artificial associations, I will merely name the species dependent on them for nesting sites, with a mention of the sites chosen in cases where it may not be obvious. These birds are: Killdeer (breeding in plowed fields and along irrigation ditches), Red-shafted Flicker, Arkansas Kingbird, Say Phoebe, English Sparrow, Purple Martin, Cliff, Barn and Tree swallows, Dipper (breeding under bridges), House Wren, Robin, and Mountain Bluebird.

Many other species may also be influenced by artificial conditions. Reservoirs built for irrigation purposes have attracted many breeding water birds in certain areas. Grain fields attract Meadowlarks and Sharp-tailed Grouse in the breeding season, and many other species in late summer and fall. Wherever cottonwoods are planted for shade trees, as along streets in the residence districts of cities, all of the smaller species nesting in the cottonwood grove association are liable to be found. These associations will become more and more important as the state is more thickly settled, until, as is the case in many parts of the eastern United States, the natural associations will have been largely supplanted by them.

## LIST OF SPECIES

### 1. ***Aechmophorus occidentalis*** (Lawrence)

#### WESTERN GREBE

A migrant in the northwestern part of the state, possibly breeding in some favorable localities. Records: Great Falls, three seen and one taken May 9, 1887 (Williams, 1888a, p. 14); Flathead Lake, a regular migrant in September; two mounted specimens in the collection of H. P. Stanford of Kalispell (Saunders, 1915b, p. 114); seen on Foy's Lake, Kalispell, October 20, 1917 (Sloanaker, MS). Occurs on Lake MacDonald and the North Fork of the Flathead River, Glacier National Park. A nest reported in the Park (F. M. Bailey, 1918, p. 52).

### 2. ***Colymbus holboelli*** (Reinhardt)

#### HOLBOELL GREBE

Breeds at Swan Lake, Flathead County, and found in migration in other localities in the western part of the state. Breeding records: Seven nests found at Swan Lake between June 4 and 17, 1902, and five between June 18 and 22, 1903 (Silloway, 1903b, pp. 298-299, 1902d, pp. 129-131).

Migration records: One taken at Three Forks, Gallatin County, October 17, 1909 (Saunders, 1911a, p. 31); seen at Lubee, Teton County, September 25-27, 1911 (Saunders, 1914a, p. 127); a dead bird found at Polson in October, 1912. Reported from Lake MacDonald and Waterton Lake (F. M. Bailey, 1918, p. 52).

### 3. ***Colymbus auritus*** Linnaeus

#### HORNED GREBE

A migrant and a rare breeder in the northern part of the state. Records of this species are few. It is probably common in migration but confused with the next species. Records: Abundant migrant on the Missouri and all streams and pools in the mountains (Grinnell, 1876, p. 655). Abundant on St. Mary Lakes and head of Milk River (Grinnell, 1888, p. 368). One shot on the Madison

River, Gallatin County, November 15, 1914, and two from a flock of about twelve secured between Comanche and Broadview, Yellowstone County, October 12, 1917 (Thomas, MS).

Breeding records: A nest and eggs of this species found at Dutton, June 3, 1917 (see figs. 9 and 10). The nest contained two eggs when found, three eggs June 5, four June 7, five June 9, and six June 12, when complete (DuBois, MS). Occurs on St. Mary's Lake, and a nest found on a pond above Swiftcurrent Lakes, Glacier National Park. (F. M. Bailey, 1918, p. 52).

#### 4. *Colymbus nigricollis californicus* (Heermann)

##### EARED GREBE

A fairly common summer resident throughout the northern part of the state. Breeding records: Flathead Lake, three young taken June 20, 1901 (Silloway, 1901a, p. 37); summer resident in Teton County (Saunders, 1914a, p. 127); a colony of about one hundred nests found on Priest Butte Lake, Teton



Fig. 9. A PAIR OF HORNED GREBES AND THEIR NEST. MALE NEARER THE NEST. NEAR DUTTON, TETON COUNTY; JUNE, 1917. PHOTO BY A. D. DUBOIS.

County, June 14, 1916. They contained from one to five fresh eggs each (Du Bois, MS).

Migration records: Spring: Yellowstone River, May 7, 1904 (Cameron, 1907, p. 247); Fort Keogh, May 14, 1892 (Thorne, 1895, p. 212); Lewistown, May 2, 1903 (Silloway, 1903a, p. 11); Teton County, May 1, 1912 (Saunders, 1914a, p. 127). Fall: Tongue River, September 2, 1873 (Allen, 1874, p. 68); Milk River, August 30, 1874 (Cones, 1874b, p. 657); Lewistown, August 23, 1901 (Silloway, 1903a, p. 11). Terry, October 2, 1904 (Cameron, 1907, p. 247); Rock Creek Lake, Powell County, flock of 175, September 17, 1910 (Saunders, 1912a, p. 23). Priest Butte Lake, Teton County, September 4, 1911 (Saunders, 1914a, p. 127). Kalispell, October 14 and 20, 1917 (Sloanaker, MS).

5.

**Podilymbus podiceps** (Linnaeus)

## PIED-BILLED GREBE

A summer resident, not reported from many localities, and apparently common only in the southern half of the state.

Records: Regular summer resident in Fergus County (Silloway, 1903a, p. 11.) Noted once at Flathead Lake (Silloway, 1901a, p. 37). In small numbers on the Big Horn River (McChesney, 1879, p. 2395). Yellowstone River, May 23 and 31, 1904 (Cameron, 1907, p. 247). Gallatin County, August 29, 1908 (Saunders, 1911a, p. 32). Rare in summer in Teton County (Saunders, 1914a, p. 127). Nests commonly on little lakes in vicinity of Billings (Thomas, MS).



Fig. 10. FEMALE HORNED GREBE ON THE NEST. NEAR DUTTON, TETON COUNTY, MONTANA; JUNE, 1917. PHOTO BY A. D. DuBOIS.

6.

**Gavia immer** (Brünnich)

## LOON

A summer resident in suitable localities, mainly in the northwestern part of the state. Noted as a migrant elsewhere, but records in the eastern part of the state are few.

Records: Flathead Lake, common summer resident. (Silloway, 1901a, p. 37). Abundant on the Missouri (Grinnell, 1876, p. 655). Gallatin Valley (Saunders, 1911a, p. 32). Priest Butte Lake, Teton County, May 26, 1912 (Saunders, 1914a, p. 127). Stevensville, Ravalli County, taken in April, 1908, in April or May, 1910, and in the fall of 1912 (Bailey, MS). Winter records: Found dead in ice on Foy's Lake, Kalispell, December 24, 1917. Two seen on Flathead Lake, January 12, 1917 (Sloanaker, MS). Seen on the Yellowstone

in March and April, and near Custer May 25, 1917, where it possibly breeds on islands. Nest with two eggs found at Big Lake, Stillwater County, June 6, 1918 (Thomas, MS). Nests commonly on more remote lakes, in Glacier Park (F. M. Bailey, 1918, p. 52). Seen at Helena April 9, 1911.

7. **Gavia stellata** (Pontoppidan)

RED-THROATED LOON

One taken at Mud Lake, Flathead County, July 15, 1901 (Silloway, 1901a, p. 38). The specimen is in the collection of the University of Montana. Occurs on the Yellowstone, near Billings in migrations and winter (Thomas, MS).

8. **Larus occidentalis** Audubon

WESTERN GULL

One, in juvenal plumage, taken at Flathead Lake, August 29, 1900 (Silloway, 1901a, p. 38). The identification of this specimen was later questioned by Mr. Silloway. I have examined the bird and believe that it is properly identified. It is in the collection of the University of Montana.

9. **Larus argentatus** Pontoppidan

HERRING GULL

A migrant in the eastern part of the state, breeding rarely. Common on the Missouri in fall (Silloway, 1903a, p. 11). Taken at Fort Benton by J. H. Beatty, September 8, 1874 (Cones, 1874b, p. 655). Common on the Yellowstone in fall in Custer and Dawson counties (Cameron, 1907, p. 247). Twenty on the Yellowstone at Billings, May 4, 1917. A nest with five eggs taken at Big Lake, June 4, 1918 (Thomas, MS).

10. **Larus californicus** Lawrence

CALIFORNIA GULL

One seen in September, 1888, on the Jefferson River, Gallatin County (Richmond and Knowlton, 1894, p. 301). I secured a young bird at Flathead Lake, July 2, 1914. The bird was one in partly mature plumage, and I supposed it *delawarensis*. Mr. Sloanaker examined it later, and wrote me that he believed it to be *californicus*. Later, at my request, he sent it to Dr. Grinnell, at the Museum of Vertebrate Zoology, who confirmed his identification. Mr. Sloanaker writes me that mounted birds in Kalispell are undoubtedly this species, and that he believed it more common at Flathead Lake than *delawarensis*.

11. **Larus delawarensis** Ord

RING-BILLED GULL

A summer resident locally, mainly in the northern part of the state, and a migrant elsewhere, wherever there are streams and lakes. This is the commonest and most widely distributed gull in the state.

Breeding records: A colony found breeding on an island in Lake Bowdoin, near Malta, June 4, 1903 (Willett, 1907, p. 106). Young unable to fly seen near Strater, July 18, 1910 by Anthony (Cooke, 1915a, p. 34). About ten pairs

breed on Big Lake, Stillwater County (Thomas, MS). The bird is common in summer at Flathead Lake (Silloway, 1901a, p. 38) and in Teton County (Saunders, 1914a, p. 137), but is not known to breed at either place.

This species has been reported from many localities in the state in migration, indicating that it ranges practically throughout the state, but it may be more or less replaced by *californicus* west of the continental divide. Definite dates of migration are few. These are Teton County, April 16, 1912, and November 19, 1912 (Saunders, 1914a, p. 127) and Helena, April 9, 1911.

A winter record is that of a bird found dead at Lewistown, December 31, 1908 (Silloway, 1903a, p. 11).

12. **Larus franklini** Richardson

FRANKLIN GULL

A large colony was breeding on Big Lake, Stillwater County, in 1917, but was not present in 1918 (Thomas, MS). This appears to be the only record of this species in the state.

13. **Larus philadelphia** (Ord)

BONAPARTE GULL

A rare migrant or erratic visitor in summer. The only records are Custer and Dawson counties, August 12, 1904, and July 31, 1905 (Cameron, 1907, p. 247); Teton County, a flock seen October 31, 1912 (Saunders, 1914a, p. 127) and Flathead Lake, where it is an uncommon migrant, Stanford having mounted two in past years (Sloanaker, MS).

14. **Xema sabini** (J. Sabine)

SABINE GULL

One shot and twenty-five others seen at Terry, Custer County, September 23, 1904 (Cameron, 1905a, p. 76).

15. **Sterna caspia** Pallas

CASPIAN TERN

An adult male taken at Big Lake, Stillwater County, May 1, 1917. Three others were seen at the same time, and several were seen in the spring of 1918 (Thomas, MS).

16. **Sterna forsteri** Nuttall

FORSTER TERN

One taken from a flock at Flathead Lake, August 23, 1900 (Silloway, 1901a, p. 38). One killed by Dr. C. R. Thornton at Corvallis, Ravalli County, in the summer of 1909 (Bailey, MS). Thirty seen in early spring about Toluca, Big Horn County, in 1917, the last leaving late in April (Thomas, MS).

17. **Sterna hirundo** Linnaeus

COMMON TERN

Noted as abundant and nesting at Lake Bowdoin, near Malta, Phillips County, June 28, 1903 (Willetts, 1907, p. 105).

18. ***Sterna antillarum*** (Lesson)

## LEAST TERN

One taken on the Yellowstone River, July 2, 1857, by Lieut. Warren's Expedition (Baird, 1858, p. 864).

19. ***Hydrochelidon nigra surinamensis*** (Gmelin)

## BLACK TERN

A summer resident, breeding in suitable places, mainly in the northern part of the state. Occurs as a migrant, rather erratically in many localities.

Breeding records: A pair seen at Somers, north end of Flathead Lake, June 23, 1915, were evidently breeding (Saunders, 1916a, p. 85). Common at Kalispell, nesting in suitable sloughs (Sloanaker, MS). A large colony seen at Grassy Lake, Teton County, June 12, 1916, and two at Priest Butte Lake, June 14, were probably breeding (DuBois, MS). Breeds in the Lake Basin near Billings, where nests with eggs were found at Big Lake, June 22, 1918 (Thomas, MS).

Migrant records: Custer and Dawson counties, several erratic records from May to August (Cameron, 1907, p. 247). One taken at Bozeman is in the collection of the Montana Agricultural College (Saunders, 1911a, p. 32). One seen at Missoula, May 30, 1917 (Kittredge, MS).

20. ***Phalacrocorax auritus auritus*** (Lesson)

## DOUBLE-CRESTED CORMORANT

A rare migrant along the larger rivers, mainly in the eastern part of the state. Records: One on Upper St. Mary Lake, October 15, 1887 (Grinnell, 1888, p. 368). One seen on the Yellowstone in Custer County, October 15, 1904 (Cameron, 1907, p. 247). One taken at Miles City in September, 1902, by R. C. Morrison. This specimen was examined in the flesh and identified by C. F. Hedges. It was mounted by T. J. Newman, a taxidermist in Miles City, but was later destroyed (Hedges, MS). Two seen on the Missouri River at Lombard, Gallatin County, April 22 and 23 1909 (Saunders, 1911a, p. 32).

21. ***Pelecanus erythrorhynchos*** Gmelin

## WHITE PELICAN

Breeds in at least two localities in the prairie region of the state, and occurs in summer or migrations in many other places. Found breeding at Lake Bowdoin, young and eggs being seen on July 4, 1903 (Willett, 1907, p. 106). This colony is evidently still in existence, for I saw a number of birds of this species on this lake, from the train, on June 22, 1915. A colony of eight pairs breeds on an island in Big Lake, Stillwater County, observed there in 1918 (Thomas, MS).

Migrant records of this species are numerous and scattered through the state. In many small towns of the state mounted specimens of this bird are to be seen in taxidermists' shops or store windows, testifying to its widespread occurrence. Definite dates of its occurrence are hard to get, however. The only ones available are as follows: Miles City, September 5, 1898 (Cameron, 1907, p. 247). Camp Thorne (site of what is now Glendive), September 12, 1873

(Allen, 1874, p. 68). Helena, four shot by Wm. Muth and A. L. Palmer in August, 1901 (Silloway, from an unpublished manuscript in the possession of the University of Montana). Statements are made that this species remains until the ponds and lakes freeze in early winter, but there are no definite dates on record to show this.

22.

**Mergus americanus** Cassin

## MERGANSER

A summer resident in the western part of the state, mainly west of the continental divide, where it is reported to breed. Occurs in migration throughout the state.

Summer records: Flathead Lake, probably breeding (Silloway, 1901a, p. 38). Bitterroot Valley, common breeder (Bailey, MS). Breeds in Glacier Park (F. M. Bailey, 1918, p. 53).

Records in migration: Powder River and Deer Creek, Custer County, May 3-19, and September 19, 1860 (Cones, 1874a, p. 584). Miles City, October, 1889 (Thorne, 1895, p. 212). Terry, November 12, 1904 (Cameron, 1907, pp. 237-238). Lewistown, April 27, 1903 (Silloway, 1903a, p. 12). Choteau, April 16-17, 1912 (Saunders, 1914a, p. 127). Corvallis, Ravalli County, March 1, 1911; March 7, 1912 and February 15, 1913 (Bailey, MS). This species has also been recorded without dates from the Little Blackfoot River (Cooper, 1869, p. 84) and from Gallatin County (Saunders, 1911a, p. 32). In Glacier National Park, Mergansers are reported to remain all winter in open water (F. M. Bailey, 1918, p. 53).

The only data which indicate the time when they nest are from the Bitterroot Valley, as follows: "They breed regularly along the river. I have found them breeding as early as March, (March 23, 1912) and have found young no more than a week old in June (June 10, 1910)" (Bailey, MS).

23.

**Mergus serrator** Linnaeus

## RED-BREASTED MERGANSER

A migrant, fairly common in most localities, and recorded throughout the state. The bird has been frequently seen in August and September in the mountainous parts of the state, and may breed in such localities, though there is nothing to indicate this at present. The only record west of the continental divide is at Lake MacDonald, where one was shot by a forest ranger (Sloanaker, MS).

Spring migration dates are as follows: Fort Keogh, April 27, 1889 (Thorne, 1895, p. 212). Lombard, Gallatin County, April 22, 1909 (Saunders, 1911a, p. 32). Dawson County, April 7, 1890 (Cameron, 1907a, p. 248). Buxton, Silver Bow County, May 6, 1910, and Anaconda, May 1, 1911 (Saunders, 1912a, p. 23). Choteau, May 23, 1912 (Saunders, 1914a, p. 127).

24.

**Lophodytes cucullatus** (Linnaeus)

## HOODED MERGANSER

Widely distributed over the state, apparently breeding in suitable localities, everywhere, but not common anywhere. Summer records of the species are

most common. Young have been noted, but there is no record that the nest has ever been found.

Records: Upper Missouri and Milk rivers (Cones, 1874a, p. 585). Missouri River (Grinnell, 1876, p. 655). Dawson County (Cameron, 1907, p. 248). Fort Keogh (Thorne, 1895, p. 212). Flathead Lake (Silloway, 1901a, p. 38). Fergus County in migration (Silloway, 1903a, p. 12). Gallatin County (Saunders, 1911a, p. 32). A female and young bird were seen on the Upper Two Medicine Lake, Glacier National Park, August 5, 1914.

The only dates that indicate the time of migration are the following: Yellowstone River, May 7, 1905 (Cameron, 1907, p. 248), and Corvallis, September 2, 1911, one shot (Bailey, MS).

25.

***Anas platyrhynchos* Linnaeus**

MALLARD

Abundant throughout the state. The most abundant and widely distributed duck in Montana. Breeds commonly in most parts of the state but reported as becoming rare as a breeder in Custer and Dawson counties (Cameron, 1907, p. 248). Abundant in migration everywhere. Winters commonly in mountain valleys throughout the western half of the state, the easternmost point where it is reported to winter being Fergus County (Silloway, 1903a, p. 12).

Migration dates in the western half of the state are difficult to obtain with accuracy because so many birds winter, but the height of the migrations is evidently in April and October. For the eastern half the only date obtainable is the average arrival at Terry, which is March 26 (Cooke, 1906a, p. 23).

Mallards begin nesting in April, and the young may be found commonly in June. At Great Falls the latest date for fresh eggs is given as May 24 (Williams, 1888a, p. 17), but there is a much later date from Malta, June 28, 1903 (Willett, 1907, p. 105).

26.

***Chaulelasmus streperus* (Linnaeus)**

GADWALL

Probably occurs throughout the state as a migrant but not as yet reported from the southwestern portion. Breeds in the northern half of the state, east of the continental divide, and is reported as occurring in summer in the Bitterroot Valley (Bailey, MS). Breeds in the Milk River region (Cones, 1874b, p. 650), and in Teton County, where downy young may be seen in June and July (Saunders, 1914a, p. 128). This species has also been found with downy young in Glacier National Park (F. M. Bailey, 1918, p. 53).

Reported as a migrant only in Custer and Dawson counties (Cameron, 1907, p. 248), and Fergus County (Silloway, 1903a, p. 12) and at Fort Keogh (Thorne, 1895, p. 212). Reported in September "on the road to Ft. Ellis" (McChesney, 1879, p. 2394). In the Bitterroot Valley it is fairly common in spring and summer and abundant in fall (Bailey, MS). A fairly common migrant in Yellowstone and Stillwater counties (Thomas, MS).

Migration dates: Terry, about April 1 (Cooke, 1906a, p. 27). Dawson County, April 7, 1890 (Cameron, 1907, p. 248). Corvallis, April 5, 1913 (Bailey, MS.), and Choteau April 17, 1912 (Saunders, 1914a, p. 128).

27.

***Mareca americana* (Gmelin)**

BALDPATE

A common migrant throughout the state, and a summer resident in some localities. Breeds abundantly along the northern border of the state (Cooles, 1874a, p. 564), near Malta (Willett, 1907, p. 105), in Teton County (Saunders, 1914a, p. 128) and in Gallatin County (Saunders, 1911a, p. 32).

In migration this species is reported from practically all localities where extensive work has been done. In eastern Montana it does not appear to be very common, but in the western part it is one of the most abundant migrant ducks. In the Bitterroot Valley it is reported as rare in spring, and very common in fall (Bailey, MS).

Dates of migration are as follows: Terry, average spring arrival, April 8 (Cooke, 1906a, p. 29). Gallatin County, April 25-May 14, 1909 (Saunders, 1911a, p. 32), Buxton, Silver Bow County, May 7, 1910, and Anaconda, April 20-May 27, 1911 (Saunders, 1912a, p. 23), Choteau, April 17, 1912, and November 28, 1912 (Saunders, 1914a, p. 128), and Corvallis, February 19, 1911 (Bailey, MS).

28.

***Nettion carolinense* (Gmelin)**

GREEN-WINGED TEAL

A regular summer resident, breeding in suitable localities throughout the state. Very abundant in migrations. A few winter in the western half of the state. Breeds most abundantly in northern Montana, east of the continental divide. August records are common in many parts of the state, indicating either breeding, or very early fall migration.

Breeding is definitely reported in the following localities: Custer and Dawson counties (Cameron, 1907, p. 248); Big Horn River (McChesney, 1879, p. 2394); Fort Keogh (Thorne, 1895, p. 212); Milk River (Cooles, 1874b, p. 650); eastern Montana (Grinnell, 1876, p. 654); Teton County (Saunders, 1914a, p. 128); Bitterroot Valley (Bailey, MS).

Migration dates are reported as follows: Great Falls, May 9, 1887 (Williams, 1888a, p. 17); Terry, average, March 23 (Cooke, 1906a, p. 31); Buxton, April 23, 1910; Anaconda, April 23, 1911, and Race Track, October 30, 1910 (Saunders, 1912a, p. 23); Choteau, April 16, 1912 (Saunders, 1914a, p. 128); Three Forks, October 17, 1909.

Winter records: Great Falls (Williams, 1888a, p. 17); Deerfield, December 5, 1902 (Silloway, 1903a, p. 13); Anaconda, January 8, 1911 (Saunders, 1912a, p. 23); Choteau, December 27, 1912 (Saunders, 1914a, p. 128); and Bitterroot Valley, several in 1910 and 1911, and two males January 2, 1912 (Bailey, MS).

29.

***Querquedula discors* (Linnaeus)**

BLUE-WINGED TEAL

A very abundant migrant, and less common as a summer resident throughout the state. Reported practically everywhere and by nearly all observers in migrations. Breeding records are from the following localities: Missouri and

Milk rivers (Cones, 1874b, p. 651); Big Horn River (McChesney, 1879, p. 2394); near Malta (Willett, 1907, p. 105); Custer and Dawson counties (Cameron, 1907, pp. 248-249); Gallatin County (Saunders, 1911a, p. 33); Teton County (Saunders, 1914a, p. 128); Bitterroot Valley, breeds very rarely (Bailey, MS). The only date for nesting that I know of is July 15, 1913, when a set of seven eggs was found on the Dearborn River, in northern Lewis and Clark County.

Migration dates: Rosebud, September 9, 1860 (Cones, 1874a, p. 567); Great Falls, May 9, 1887 (Williams, 1888a, p. 17); Anaconda, April 23, 1911, and Willow Creek, Powell County, September 26, 1910 (Saunders, 1912a, p. 23).

30.

***Querquedula cyanoptera* (Vieillot)**

CINNAMON TEAL

Breeds in some localities west of the continental divide, and occurs in migration rarely in other parts of the state. Reported at present from only six localities. The only records in the eastern half of the state are from Popoagie Creek, May 22, 1860 (Cones, 1874a, p. 567), and Billings, May 1, 1917 (Thomas, MS). Other records are as follows: Flocks seen between Thompson's Falls and Flathead River, August 11, 1900 (Jones and Dawson, 1900, pp. 28-29); Gallatin County, May 14, 1909 (Saunders, 1911a, p. 33); Silver Bow, May 21, 1911 (Saunders, 1912a, p. 23); Bitterroot Valley, fairly common breeder, remaining till about September 1. Spring arrival May 12, 1912 (Bailey, MS).

31.

***Spatula clypeata* (Linnaeus)**

SHOVELLER

A common migrant throughout the state. Breeds, or occurs in summer, in the more suitable localities. Summer records: Custer and Dawson counties (Cameron, 1907, p. 249); Milk River, breeds (Cones, 1874a, p. 571); Malta, nest and nine eggs on June 19, 1903, and other nests June 28, 1903 (Willett, 1907, p. 105); Teton County (Saunders, 1914a, p. 128); Bitterroot Valley, rare breeder (Bailey, MS); Pend-Oreille River at Polson, July 27, 1915 (Saunders, 1916c, p. 85); breeds near Billings (Thomas, MS).

Migration dates are as follows: Terry, average arrival April 13 (Cooke, 1906a, p. 37); Missoula, April 19, 1897 (specimen in collection of University of Montana); Gallatin County, April 22, 1909 (Saunders, 1911a, p. 33); Fridley, Park County, May 13, 1909, Stuart, Silver Bow County, April 30, 1911, Race Track, Deer Lodge County, September 26, 1910, and French Gulch, Deer Lodge County, May 14, 1911 (Saunders, 1912a, p. 23); Choteau, March 24, 1912, October 1, 1911, and November 9, 1912 (Saunders, 1914a, p. 128).

32.

***Dafila acuta* (Linnaeus)**

PINTAIL

A common migrant throughout the state, occurring in smaller numbers in summer and breeding in suitable places. Breeds in the following localities: Milk River (Cones, 1874b, p. 650); Big Horn River (McChesney, 1879, p. 2394); Dawson County (Cameron, 1907, p. 249); Gallatin County (Saunders, 1911a, p.

33); and Teton County (Saunders, 1914a, p. 128). Probably breeds at Flathead Lake (Silloway, 1901a, p. 39). Breeds at Big Lake (Thomas, MS).

Reported as a migrant in Fergus County (Silloway, 1903a, p. 13) and in the Bitterroot Valley in fall (Bailey, MS). The only migration dates are Terry, average April 1, and earliest March 10, 1902, and Great Falls, average March 16, and earliest March 10, 1889 (Cooke, 1906a, p. 39). A winter record is Choteau, December 27, 1912 (Saunders, 1914a, p. 128).

33.

***Aix sponsa* (Linnaeus)**

## WOOD DUCK

Rare. Recorded from but six localities, as follows: Taken in spring and fall at Fort Custer by Capt. Mix (McChesney, 1879, p. 2394). Brood seen at Flathead Lake, and young male taken July 31, 1901 (Silloway, 1901a, p. 39). Gallatin County, migrant and breeds in mountains, according to Cooley (Saunders, 1911a, p. 33). Bitterroot Valley, one male captured alive near Corvallis in the fall of 1915 (Bailey, MS). Two observed on the Yellowstone near Billings in 1912 by C. S. MacFarland, who was familiar with this species in the east. The birds were observed at close range for ten minutes (Thomas, MS).

34.

***Marila americana* (Eyton)**

## REDHEAD

A rather uncommon migrant, principally in the eastern part of the state. There are no records west of the continental divide. There are no definite breeding records, and only one case of its occurrence in summer, in Gallatin County, June 29-30, 1909 (Saunders, 1911a, p. 33). Migrant records are Fort Keogh (Thorne, 1895, p. 212), Custer and Dawson counties (Cameron, 1907, p. 249), Fergus County (Silloway, 1903a, p. 14) and as below.

Migration dates: Terry, September 26, 1903 (Cameron, 1907, p. 249); northern Montana, average April 13, and earliest April 7, 1895 (Cooke, 1906a, p. 42); Choteau, April 17, 1912, and September 13, 1911 (Saunders, 1914a, p. 128); and Helena, April 9, 1911.

35.

***Marila valisineria* (Wilson)**

## CANVASBACK

A migrant in many localities in the state, but evidently not common. Breeds in the vicinity of Malta, nine eggs being secured June 19, 1903, and a nest found June 28 (Willett, 1907, p. 105). Breeds in the Lake Basin of Yellowstone and Stillwater counties (Thomas, MS).

Recorded as a migrant in Fergus County (Silloway, 1903a, p. 14), Gallatin County (Saunders, 1911a, p. 33) and as below.

Migration dates: Corvallis, October 15, 1911 (Bailey, MS); Choteau, April 17, 1912, and November 24, 1912 (Saunders, 1914a, p. 128); Helena, April 9, 1911; Kalispell, October 21, 1917 (Sloanaker, MS).

Occurs on Flathead Lake in winter, until the lake freezes over, sometimes until late in January (Sloanaker, MS).

36.

**Marila affinis** (Eyton)

## LESSER SCAUP DUCK

A common migrant throughout the state. Breeds along the northern border on the east side of the continental divide. Breeding records: Milk River (Cones, 1874a, p. 574); Teton County (Saunders, 1914a, p. 128). Migration records are in Fergus County (Silloway, 1903a, p. 14), at Flathead Lake (Sloanaker, MS) and as below.

Migration dates: Fort Keogh, March, 1889 (Thorne, 1895, p. 212); Terry, May 7, 1905 (Cameron, 1907, p. 249); Gallatin County, May 7 and 14, 1909; Great Falls, May 1, 1912; Dutton, May 12, 1917 (DuBois, MS).

37.

**Marila collaris** (Donovan)

## RING-NECKED DUCK

Rare migrant. At present known definitely from two localities only. Two birds were taken from a flock of eight or nine on Storey Creek, near Belgrade, Gallatin County, October 10, 1912, by Thomas (Saunders, 1915d, p. 238), and three more were taken from a flock of fifteen in the same locality November 17, 1914 (Thomas, MS). Dr. Cones mentions a specimen of this bird in "Dawson's collection" (1874b, p. 651) but as the locality and date are unknown, it is doubtful whether the bird came from Montana. This may be the same Dawson who collected a specimen of the Hudsonian Godwit, "east of the Milk River" and the duck may have come from that region. Reported from swampy ground in Glacier National Park in summer (F. M. Bailey, 1918, p. 53).

38.

**Clangula clangula americana** Bonaparte

## GOLDEN-EYE

Summer resident in the northwestern part of the state, breeding. Common winter visitor along all the larger rivers of the western half of the state, where the water is swift enough to remain open. Migrant in the eastern half of the state, and not common there. Breeding records: Flathead Lake (Silloway, 1901a, p. 40); Lake Josephine, Glacier National Park, August 9, 1915. A few pairs are believed to breed along the Yellowstone River in the vicinity of Billings (Thomas, MS).

Winter records: Gallatin County (Saunders, 1911a, p. 33); Jefferson County (Saunders, 1912a, p. 23); Teton County (Saunders, 1914a, p. 128). Winters commonly all along the Missouri River from Three Forks to Great Falls, and along the Yellowstone above Livingston. Judith River (Silloway, 1903a, p. 14). Bitterroot Valley, common December to March (Bailey, MS). Winters at Billings (Thomas, MS) and at Flathead Lake (Sloanaker, MS).

Migration records: In the eastern half of the state, the only records are from Custer and Dawson counties, October, 1903, September 26, 1904, and October 10, 1906 (Cameron, 1907, p. 249) and from Fort Keogh, April 17, 1889 (Thorne, 1895, p. 212). In the western half of the state the following dates represent the earliest arrivals of birds in localities where they do not winter: Choteau, April 17, 1912 (Saunders, 1914a, p. 128), and Helena, April 9, 1911. The

latest spring dates in localities where the birds do not breed are as follows: Choteau, May 3, 1912 (Saunders, 1914a, p. 128), Lombard, April 23, 1909 (Saunders, 1911a, p. 33), Great Falls, May 17 (Williams, 1888a, p. 16). Latest dates in the Bitterroot Valley are March 7, 1911, March 20, 1912, and April 3, 1913 (Bailey, MS).

39.

***Clangula islandica* (Gmelin)**

## BARROW GOLDEN-EYE

Breeds rarely in the mountains of northwestern Montana, and winters rarely on rivers. Breeding record: Chief Mountain Lake, now in Glacier National Park, August 21, 1874; a female and brood of young secured (Cones, 1874b, p. 652). Winter record: Great Falls (Williams, 1888a, p. 16). A fall migrant on the Yellowstone near Billings (Thomas, MS).

40.

***Charitonetta albeola* (Linnaeus)**

## BUFFLEHEAD

A migrant throughout the state, rare in some localities, common in others. Breeds mainly along the northern border. Breeding records: Milk River (Cones, 1874b, p. 653); Deep Creek, near Camp Baker (location now in Meagher County), female and young secured (Grinnell, 1876, p. 654); Flathead Lake, young bird taken July 30, 1901 (Silloway, 1901a, p. 40). A pair bred on the Yellowstone within one mile of Billings, having eight young in the water June 12, 1917 (Thomas, MS).

Recorded in migration from the following localities: Fort Keogh (Thorne, 1895, p. 212); Fergus County (Silloway, 1903a, p. 14); Gallatin County (Saunders, 1911a, p. 33); Bitterroot Valley, rare in fall (Bailey, MS), and as below. Migration dates: Choteau, April 17-May 14, 1912, and November 9-24, 1912 (Saunders, 1914a, p. 128).

Winter record: St. Mary's (now in northern Teton County, near the eastern border of Glacier National Park) December 18, 1853, taken by Dr. Suckley (Baird, 1858, p. 798).

41.

***Harelda hyemalis* (Linnaeus)**

## OLD-SQUAW

One, an adult female, shot on a slough near Kalispell, December 5, 1917 (Sloanaker, MS). Two pairs shot on Hollings Lake, three miles east of Billings, in October, 1916, are now mounted in a store in Billings (Thomas, MS).

42.

***Histrionicus histrionicus* (Linnaeus)**

## HARLEQUIN DUCK

A rare summer resident in the mountains along streams and lakes. Evidently most common in the northwestern part of the state. There appears to be but one record of the species in migration. Records: Breeding at Chief Mountain Lake, August, 1874 (Cones, 1874b, p. 653). Two taken on a mountain stream by G. H. Trook, May 31, 1860 (Cones, 1874a, p. 579). While this latter record is not definite as to locality it is probably from the Big Horn Mountains,

as other records from this same publication show that Trook was collecting in this vicinity in May, 1860. Several pairs seen in the Big Horn Mountains by J. C. Merrill, and thought to be breeding (Wade, 1881, p. 44). Birch Creek, Teton County, May 30 to June 3, 1912 (Saunders, 1914a, p. 128). Iceberg Lake, Glacier National Park, a pair observed June 27, 1913 (Warren, 1914, p. 535). Upper Two Medicine Lake, Glacier National Park, August 5, 1914 (Saunders, 1915c, p. 225). A pair taken on Flathead Lake without date, were mounted by Stanford (Sloanaker, MS). Seven seen on the West Gallatin River September 30, 1917 (Thomas, MS).

43. ***Oidemia deglandi* Bonaparte**

WHITE-WINGED SCOTER

A fall migrant in the western part of the state, occurring in some numbers in August, indicating that it may possibly breed in the state. The only records are as follows: Headwaters of the Missouri (probably mainly Broadwater County), August 11, 1900, abundant (Jones and Dawson, 1900, p. 29). A fall migrant on Flathead Lake according to Stanford (Saunders, 1915b, p. 114). Upper Two Medicine Lake, Glacier National Park, one seen August 5, 1914. A migrant at Billings (Thomas, MS).

44. ***Oidemia perspicillata* (Linnaeus)**

SURF SCOTER

Occurs on Flathead Lake in fall. Three specimens mounted by Stanford (Saunders, 1915b, p. 114). Several occurred on Big Lake, Stillwater County, in the fall of 1917 (Thomas, MS).

45. ***Erismatura jamaicensis* (Gmelin)**

RUDDY DUCK

A migrant, probably throughout the state, though records are lacking in some localities. Breeds along the northern border. Breeding records: Milk River (Coues, 1874b, p. 654); Flathead Indian Reservation, Missoula County (Silloway, 1903b, p. 30). Breeds in the lake basin near Billings, eggs having been secured June 4, 1918. Eggs were found in nests of the Pintail and Shoveler (Thomas, MS).

Migration records: Fort Keogh, April 21, 1889 (Thorne, 1895, p. 212); Yellowstone River (Cameron, 1907, p. 250); Fergus County (Silloway, 1903a, p. 14); Anaconda, October, 1910 (Saunders, 1912a, p. 23); Bitterroot Valley, rare fall migrant. Found at Corvallis in October, 1910 and 1911. One, October 10, 1911 (Bailey, MS).

46. ***Chen hyperboreus hyperboreus* (Pallas)**

SNOW GOOSE

A common migrant on prairies and in valleys practically throughout the state, but not reported from some localities. Records, with migration dates, are as follows: Custer and Dawson counties, April 7, 1890; September 12, 1904, and November 12, 1903 (Cameron, 1907, p. 250). Upper Missouri in October

(Grinnell, 1876, p. 654). Central Montana, average April 6 (Cooke, 1906a, pp. 66-67). Teton County, April 9-23, 1912; October 24-31, 1911, and November 9-24, 1912 (Saunders, 1914a, p. 128). Bitterroot Valley, April 17-25, 1911, April 13-18, 1912, and April 19, 1913 (Bailey, MS). Dutton, October 24, 1915, and April 9-18, 1917 (DuBois, MS). Flathead Lake (Sloanaker, MS). Billings (Thomas, MS).

47. ***Chen hyperboreus nivalis* (J. R. Forster)**

GREATER SNOW GOOSE

Five killed near Corvallis, Bitterroot Valley, from a flock of about twenty or twenty-five in the fall of 1915 by Mr. H. D. Hoblitt (Bailey, MS). According to statements of sportsmen this form has been shot on Flathead Lake and on Lake Bowdoin in Phillips County, but specimens are not preserved (Sloanaker, MS).

48. ***Chen rossi* (Cassin)**

ROSS GOOSE

A fairly common migrant. Records are scattered over most of the state, but the center of abundance seems to be just east of the mountains. Fort Keogh, April 25, 1892 (Thorne, 1895, p. 212). Lewistown, March 14, 1903 (Silloway, 1903a, p. 15). Great Falls, a large flock, several thousand in number, remained from April 17 to 26, 1885 (Williams, 1886, p. 274). Gallatin County (Saunders, 1911a, p. 33). Teton River, May 8, 1912 (Saunders, 1914a, p. 129). Average arrival at Great Falls, April 7, at Columbia Falls, April 8. Latest date, central Montana, April 24. Fall dates: Columbia Falls, October 10, 1893, average October 15, latest October 28, 1896 (Cooke, 1906a, pp. 69-70). Twelve at Haycock Lake, Yellowstone County, September 1, 1917, and nine at Big Lake, Stillwater County, October 20, 1917 (Thomas, MS).

49. ***Anser albifrons gambeli* Hartlaub**

WHITE-FRONTED GOOSE

A fairly common migrant in the vicinity of Billings (Thomas, MS). There seems to be no reason why this species should not be common elsewhere in the state, but it has evidently been overlooked, this being the only locality from which it is reported.

50. ***Branta canadensis canadensis* (Linnaeus)**

CANADA GOOSE

Formerly bred throughout the state, along rivers and about lakes. Still breeding in the more remote localities, and a common migrant everywhere. Breeding records: Custer and Dawson counties, until 1906 (Cameron, 1907, pp. 250-251); Fergus County (Silloway, 1903a, p. 15); Lake Bowdoin (Willett, 1907, p. 105); Marias River (Saunders, 1914a, p. 129); Flathead Lake (Silloway, 1901a, p. 40). Still breeding on some of the small islands of Flathead Lake, up to 1915. Also reported to breed at that time on islands in the Pend-Oreille River, on the boundary of Missoula and Sanders counties.

In early records the bird was reported breeding on the Missouri (Cones, 1874b, p. 649; Cooper, 1869a, p. 83; Grinnell, 1876, p. 654), and on the Yellowstone and Mussellshell rivers (Allen, 1874, p. 67). In these early reports, and also in some of the recent ones, the birds are reported to nest in trees, in old nests of hawks and ospreys (Merrill, 1883, pp. 124-125). Where breeding on islands, however, they frequently also nest on the ground.

Migration records are numerous and practically throughout the state. Dates of migration are as follows: Average arrival in Custer and Dawson counties, March 27 (Cameron, 1907, pp. 250-251); Terry, average of ten years, March 27 (earliest February 28, 1892, latest April 4, 1897); Columbia Falls, average of five years, March 24 (earliest, March 17, 1895); Great Falls, average of three years, March 12 (earliest, March 10, 1889). Fall migration: Columbia Falls, average of four years, November 20 (latest, November 24, 1895) (Cooke, 1906a, pp. 74-77). Norton Gulch, Silver Bow County, March 23, 1910. Teton County, November 24-28, 1912 (Saunders, 1914a, p. 129). Bitterroot Valley, April 17-20, 1911; April 13-14, 1912 (Bailey, MS).

51. ***Branta canadensis hutchinsi*** (Richardson)

HUTCHINS GOOSE

A migrant, reported from but two localities: Terry, October 4, 1903 (Cameron, 1907, p. 251), and September 22, 1904 (Cooke, 1906a, p. 78); and Big Horn River, three secured from a large flock in November, 1917 (Thomas, MS).

52. ***Olor columbianus*** (Ord)

WHISTLING SWAN

A migrant, probably in most parts of the state, though difficulty in distinguishing this species from the next, makes it hard to say just how abundant the bird is. It has been recorded certainly from Custer and Dawson counties (Cameron, 1907, p. 250), the Highwood Lakes (Felton), Teton County (Saunders, 1914a, p. 129), and Gallatin County (Saunders, 1911a, p. 33). A large flock was reported from Madison Lake in September, 1917 (Thomas, MS). Migrant swans that probably belong to this species are also recorded from Jefferson and Deer Lodge counties (Saunders, 1912a, p. 24). In the Bitterroot Valley a swan is reported as a rare migrant, but the species is in question. The birds occurred April 11-15, 1910, and April 17-20, 1911 (Bailey, MS). Other migration data that are probably mainly for this species are Teton County, April 23, 1912, October 31, 1911, and November 9-28, 1912.

53. ***Olor buccinator*** (Richardson)

TRUMPETER SWAN

Formerly a summer resident in suitable localities throughout the state. Now still found in some numbers in migration, and perhaps even commoner at that season than the above species. The species possibly breeds in the more remote parts of the state, but recent data concerning the breeding are from unsatisfactory sources, and attempts to locate breeding areas have been unsuccessful. The most recent breeding records are as follows: Highland Lakes (Silloway, 1903a,

p. 15). Three obtained from the nest alive in 1906, locality not given (Coale, 1915, p. 89). Three pairs and a single bird seen June 28, 1914, north of Havre in northern Choteau County, by W. L. Thomas. A pair reported by ranchers to have remained on Big Lake, Stillwater County, throughout the summer of 1917, and to have raised three young, two of which were shot. These birds were present again in 1918 (Thomas, MS).

The following is a summary of Montana records from Mr. H. K. Coale's recent article on this species (1915, pp. 82-90): Common up to twenty years ago, and formerly wintered regularly in Montana. Nested up to 1881 on Rodgers Lake, twenty miles west of Kalispell, and on Swan Lake and lakes in the Clearwater. An adult male was taken at the mouth of the Flathead River, November 16, 1910. Taken at St. Mary's Lake in the fall of 1912, and at Cut Bank, Teton County, November 10, 1913, and at Stillwater Lake March 11, 1902. Records of this species from other sources are from Custer and Dawson counties May 1, 1884, and October 27, 1905 (Cameron, 1907, p. 251). Breeds on the Yellowstone (Coues, 1874a, p. 544); August 27, 1856 (Baird, 1858, p. 759). One killed by Col. Buell about December 10, 1877, at Fort T. C. Smith (McChesney, 1879, p. 2394).

54.

### ***Mycteria americana* Linnaeus**

#### WOOD IBIS

A young bird was taken at Ennis, on the Madison River in October, 1902 (Cooley, 1903, p. 210). This specimen, mounted, is now in the collection of the Montana Agricultural College at Bozeman. An adult was observed on the Yellowstone, near Custer, on May 4, 1918, from a distance of about 50 yards (Thomas, MS). Mr. Thomas became familiar with this species on a collecting trip in Mexico. He writes that a rancher showed him this bird and stated that it had been there the previous year.

55.

### ***Botaurus lentiginosus* (Montagu)**

#### BITTERN

Migrant in suitable localities probably throughout the state. Summer resident, at least along the northern border, and probably anywhere in the state where grounds suitable for its breeding exist. Breeding records: Flathead Lake (Silloway, 1901a, p. 40); Malta (Willett, 1907, p. 105); Teton County (Saunders, 1914a, p. 129); Bitterroot Valley, rare breeder (Bailey, MS). Records in migration are from Custer and Dawson counties (Cameron, 1907, p. 251); Gallatin County (Richmond and Knowlton, 1894, p. 302); Fergus County (Silloway, 1903a, p. 15); and Bitterroot Valley, several seen every fall (Bailey, MS).

Migration dates are as follows: Terry, April 23, 1893 (Cooke, 1913a, p. 28); Lewistown, May 19 (Silloway, 1903a, p. 15); and Choteau, May 13, 1912 (Saunders, 1914a, p. 129).

56.

### ***Ixobrychus exilis* (Gmelin)**

#### LEAST BITTERN

A dead bird, badly decomposed, found at Big Lake, Stillwater County, in

the fall of 1917. Seen twice in 1918 in the same locality, and a pair with partially completed nest found on May 19 (Thomas, MS).

57. ***Ardea herodias herodias* Linnaeus**

GREAT BLUE HERON

Common summer resident along the larger rivers on the east side of the continental divide. Recorded as a migrant only west of the divide. Records: Fort Benton (Cooper, 1869a, p. 82); Missouri River (Grinnell, 1876, p. 653); Yellowstone River (McChesney, 1879, p. 2394); Custer and Dawson counties (Cameron, 1907, p. 251). For a detailed account of the nesting in this part of the state see also Cameron (1906, pp. 253-262). Nesting at Lake Bowdoin (Willett, 1907, p. 106); Gallatin County (Saunders, 1911a, p. 34); Jefferson County (Saunders, 1912a, p. 24). Recorded in migration only in Fergus County (Silloway, 1903a, p. 16), and in the Bitterroot Valley (Bailey, MS). This species is common all summer along the Missouri River in Cascade, Lewis and Clark, and Broadwater counties.

Migration dates: Terry, average May 7, earliest May 2, 1905. In fall, September 21, latest September 24, 1905 (Cooke, 1913a, p. 39). Lombard, April 23, 1909, and Cascade, May 2, 1912.

Nesting data: Nesting on the ground on an island in Lake Bowdoin, July 4, 1903 (Willett, 1907, p. 106). Colonies nest on islands in the Yellowstone River (Cameron, 1906, p. 252), below Three Forks (Saunders, 1911a, p. 34), and near Billings (Thomas, MS).

58. ***Grus americana* (Linnaeus)**

WHOOPIING CRANE

A rare migrant in the eastern part of the state. There are records from but three localities: Big Sandy, May 1 to 5, 1903 (Conbeaux), Terry, October 5, 1904 (Cameron) (Cooke, 1914a, p. 6), and Billings, April 8, 1918 (Thomas, MS).

59. ***Grus canadensis* (Linnaeus)**

LITTLE BROWN CRANE

Regular fall migrant in extreme eastern Montana. Not recorded elsewhere, though it may be commoner than supposed and found throughout the state. The only region where it has been recorded is in Custer and Dawson counties, where it is a migrant in fall (Cameron, 1907, p. 251). Migration dates in the vicinity of Terry are September 24, 1894, and October 10, 1898.

60. ***Grus mexicana* (Müller)**

SANDHILL CRANE

Found throughout the state, principally in migrations, but not common anywhere. There are a number of summer records, and the bird may breed in remote localities that are suitable. It formerly bred commonly, and there is one recent report by Vernon Bailey, of breeding near Midvale, now Glacier Park, in Teton County (Cooke, 1914a, pp. 11-13). Other summer records are: Flat-

head Lake (Silloway, 1903b, p. 30), Bitterroot Valley, one in June and three in July, 1910 (Bailey, MS).

Migration records are: Custer and Dawson counties, September 22, 1893 (Cameron, 1907, p. 251); Fergus County, formerly common, now rare (Silloway, 1903a, p. 16); Fort Shaw, February 28, 1868, Big Sandy, April 6, 1905, and Terry, November 10, 1903 (Cooke, 1914a, pp. 11-13); Stuart, Silver Bow County, April 16, 1911 (Saunders, 1912a, p. 24); Choteau, April 28, 1912 (Saunders, 1914a, p. 129); Bitterroot Valley, April 20, 1912 (Bailey, MS); and Billings, April 8 and September 15, 1918 (Thomas, MS).

61.

***Rallus virginianus* Linnaeus**

## VIRGINIA RAIL

Probably a summer resident in suitable localities throughout the state, but at present records are few and widely scattered. Recorded in summer from Custer County (Thorne, 1895, p. 213); Columbia Falls, breeding, arriving May 16, 1894; and Fort Custer, May 11, 1885 (Cooke, 1914a, pp. 22-24); Bitterroot Valley, fairly common from April to November (Bailey, MS). Winter record, Helena, February 22 and March 12, 1911 (Saunders, 1911c, p. 108).

62.

***Porzana carolina* (Linnaeus)**

## SORA

A summer resident throughout the state, wherever there are suitable marshes for its breeding. Reported breeding in the following localities: Custer and Dawson counties (Cameron, 1907, p. 252); Fergus County (Silloway, 1904b, p. 150); Gallatin County (Saunders, 1911a, p. 34); Jefferson County (Saunders, 1912a, p. 24); Teton County (Saunders, 1913d, p. 128, and 1914a, p. 129); Bitterroot Valley (Bailey, MS). Dates of nesting are: Custer County, June 18, 1898; Lewistown, June 17; Choteau, June 18, 1912. Reported in summer also at Flathead Lake (Silloway, 1901a, p. 40); Dutton, July 7 and 9, 1917 (eggs), July 22 (downy young) (DuBois, MS).

Migration dates for this species are: Terry, May 9, 1906; and in fall, average, September 12, latest October 17, 1908 (Cooke, 1914a, p. 31). Teton County, May 14, 1912 (Saunders, 1914a, p. 129).

63.

***Fulica americana* Gmelin**

## COOT

A summer resident throughout most of the state, but reported only in migration from the southwestern part. Breeding records: Milk and Missouri rivers, eggs found July 1 and 8, 1874 (Coues, 1874b, p. 647); Custer County (Cameron, 1907, p. 252); Yellowstone and Musselshell rivers (Allen, 1874, p. 67); Fort Keogh (Thorne, 1895, p. 213); Fergus County (Silloway, 1903a, p. 16); Flathead Lake (Silloway, 1903b, p. 301); seen with downy young at Flathead Lake in July, 1914; Lake Bowdoin, nests abundant June 19, 1903 (Willett, 1907, p. 105); Teton County (Saunders, 1914a, p. 129); Billings (Thomas, MS).

Migrant records: Gallatin County, (Saunders, 1911a, p. 34); Deer Lodge County (Saunders, 1912a, p. 24); Bitterroot Valley (Bailey, MS). Migration

dates: Gallatin County, May 26, 1909; Teton County, May 26, 1912, and November 9, 1912. Fergus County, April 28, 1903; Great Falls, April 26, 1892; Terry, October 4, 1903 (Cooke, 1914a, pp. 45-46); Dutton, April 26, 1916 (DuBois, MS); and Flathead Lake, October 23, 1917 (Sloanaker, MS).

64. **Lobipes lobatus** (Linnaeus)

NORTHERN PHALAROPE

A migrant throughout the state. The present records show that it is a spring migrant mainly, if not entirely, in the eastern half, and a fall migrant in the western half. Spring records are from Custer and Dawson counties only, where three were shot on May 21, 1899, and others seen later (Cameron, 1907, p. 252; 1900, pp. 67-70). Four were taken at Fort Keogh, June 18, 1899 (Thorne, 1895, p. 213). Fall records: Rocky Mountains, August 16, 1874 (Coues, 1874b, p. 637); Fort Ellis, thirty or forty seen in August (Grinnell, 1876, p. 651); Gallatin County, September (Richmond and Knowlton, 1894, p. 302); Teton County, August 13--September 4, 1911 (Saunders, 1914a, p. 129); Flathead Lake, regular migrant, taken August 27, 1900 (Silloway, 1901a, p. 41). In Bitterroot Valley it is a regular fall migrant. A young of the year taken July 5, 1909. Two secured August 24, 1910. Three seen in September, 1910. Two taken September 7, 1911. Common in August and early September, 1912, and late August, 1913 (Bailey, MS). The bird is also recorded as taken in Fergus County, but the date is not given, so whether spring or fall migrant in this locality is not certain (Silloway, 1903a, p. 17).



Fig. 11. NEST AND EGGS OF THE SORA. CHOTEAU, TETON COUNTY; JUNE 18, 1912. EIGHTEEN EGGS WERE IN THIS NEST, FIFTEEN OF WHICH ARE VISIBLE IN THE PICTURE.

65. **Steganopus tricolor** Vieillot

WILSON PHALAROPE

Summer resident along the northern border of the state, and less commonly farther south. Migrant in the eastern part. Breeding records: Milk River and vicinity (Coues, 1874b, p. 637); Lake Bowdoin, pair probably breeding, June 19, 1903 (Willett, 1907, p. 105); Gallatin County (Saunders, 1911a, p. 34); near Helena (Saunders, 1912c, p. 218); Teton County, downy young found in June (Saunders, 1914a, p. 130); Bitterroot Valley, one taken June 7, 1913 (Bailey, 1913b, p. 184); Dutton, downy young found July 5, 1917 (DuBois, MS).

A set of four eggs taken at Big Lake, Stillwater County, June 22, 1918, and two other sets found earlier in the season (Thomas, MS).

Migrant records: Custer and Dawson counties, earliest May 21, 1889 (Cameron, 1907, p. 252); Fort Custer (McChesney, 1879, p. 2393; Fort Keogh, May and June (Thorne, 1895, p. 213); Teton County May 23, 1912 (Saunders, 1914a, p. 130). Fall migration takes place very early, evidently in July. The latest dates that I have seen birds on the breeding grounds are July 3, 1911, and July 7, 1912, both times in Teton County. Other July dates from the state are Helena, July 12, 1911, and Milk River, July 21, 1874 (Cones, 1874b, p. 637). There are no records later than July reported anywhere in the state.

66. ***Recurvirostra americana*** Gmelin

AVOCET

A summer resident in suitable localities, mainly along the northern border of the state, and a migrant elsewhere. Migration dates in most parts of the state are in fall. Spring dates are either in the extreme eastern part or on the breeding grounds. Breeding records: Milk River (Cones, 1874b, pp. 635-636); Lake Bowdoin (Willett, 1907, p. 105); Teton and northern Lewis and Clark counties (Saunders, 1914a, p. 130); and Lake Basin near Billings (Thomas, MS).

Nearly all observers mention the occurrence of this bird in migration from all parts of the state. It is apparently more abundant east of the continental divide, however, and has not been recorded from the Bitterroot Valley. The species has been reported during the spring migrations in Custer and Dawson counties, and at Great Falls; in spring and fall in Fergus County; and in fall only in all other localities, including points as far east as Fort Custer and the Musselshell River. Migration dates are as follows: Spring: Average arrival at Great Falls, April 24 (Cooke, 1910a, pp. 19-20); Terry, May 1, 1904, May 7, 1905, and May 16, 1906 (Cameron, 1907, p. 253); Fergus County, arrives end of April (Silloway, 1903a, p. 17). Fall: Flathead Lake, August 11, 1903 (Silloway, 1903b, pp. 301-302); between Yellowstone and Musselshell, August 18, 1873 (Allen, 1874, p. 66); Milk River, August 22, 1874 (Cones, 1874b, pp. 635-636); Fort Custer, August 8 and 13, 1878 (McChesney, 1879, p. 2393); Fort Ellis, August 17, 1909; Lewistown, August 23, 1901 (Silloway 1903a, p. 17); Teton County, September 1, 1911 (Saunders, 1914a, p. 130).

67. ***Philohela minor*** (Gmelin)

WOODCOCK

Three birds were found and all three secured at Billings, October 23, 1917 (Thomas, MS). The birds are now mounted and in the possession of Mr. Thomas.

68. ***Gallinago delicata*** (Ord)

WILSON SNipe

A permanent resident throughout the state. While the individuals probably migrate, this bird is reported both in winter and summer from localities all over Montana; in most places it is just as common in winter as in summer. It is always more abundant in migrations than at other times, and in most localities

is reported as most abundant in fall. Breeding records: Custer and Dawson counties (Cameron, 1907, p. 253); Fergus County (Silloway, 1903a, pp. 17-18); Flathead Lake (Silloway, 1901a, p. 41); Gallatin County (Saunders, 1911a, p. 34, and 1912e, p. 170); Jefferson County (Saunders, 1910a, p. 198); Teton County (Saunders, 1914a, p. 130); and at Fridley, Park County, June, 1909. Dates for nesting are as follows: Gallatin County, June 7, 1909, and Jefferson County, June 12, 1910.

Winter records for this species are Custer and Dawson counties (Cameron, 1907, p. 253; northern Montana (Cooke, 1910a, p. 24); Teton and Gallatin counties (Saunders, 1911a, p. 34, 1913a, p. 116, 1914a, p. 130); Helena (Saunders, 1911b, p. 108); Bitterroot Valley (Bailey, 1913a, p. 94); Missoula (Kittredge, 1916, p. 30); and Flathead Lake (Sloanaker, MS). The migrations of this bird



Fig. 12. NEST AND EGGS OF WILSON SNIPE. PIPE-STONE BASIN, JEFFERSON COUNTY, MONTANA; JUNE 12, 1910.

evidently take place in April and October, from the increased abundance at those seasons, but dates are difficult to give with certainty. Cooke (1910a, p. 25) gives a number of dates of supposed migration.

69. ***Macrorhamphus griseus scolopaceus* (Say)**

LONG-BILLED DOWITCHER

Obtained on the Little Horn River in the spring of 1878 by Col. Brackett (McChesney, 1879, p. 2393). Recorded as a migrant in Fergus County (Silloway, 1903a, p. 18). Cones (1874a, p. 478) mentions this bird as very abundant on the Upper Missouri, but this may apply to Dakota rather than Montana, as the scarcity of other records in the latter state would show that the species is rare. Common between Acton and Broadview, Yellowstone County, fall of 1917 (Thomas, MS).

70. ***Micropalama himantopus*** (Bonaparte)

## STILT SANDPIPER

Seven specimens taken August 16 and 29, 1874, at a pool at the base of the Rocky Mountains (Cones, 1874b, p. 639). This record is evidently from northern Teton county, along the Canadian border.

71. ***Pisobia maculata*** (Vieillot)

## PECTORAL SANDPIPER

A migrant, probably throughout the state, but records are lacking in many places. Usually rather rare. Rocky Mountains and west of the Sweet Grass Hills, August 11 to 16, 1874 (Cones, 1874b, p. 641); Custer County, October 18 and 21, 1905 (Cameron, 1907, p. 253); Miles City, August 14 and 15, 1900 (C. F. Hedges, coll. Univ. Montana); Fergus County, common migrant, March and April, and August to October. Dates: April 22, 1901; October 18, 1900. Winter: February 22, 1903 (Silloway, 1903a, p. 18). Flathead Lake, August 23, 1914 (Saunders, 1915a, p. 114); Teton County, September 4, 1911 (Saunders, 1914a, p. 130); Flathead Lake, 10 shot October 20, 1916 (Sloanaker, MS).

72. ***Pisobia fuscicollis*** (Vieillot)

## WHITE-RUMPED SANDPIPER

Two records from the Yellowstone River are all that are known at present. Taken by Lieut. Warren's expedition, date not given (Baird, 1858, p. 723). Above Fort Keogh, August 8 to 13, 1878 (McChesney, 1879, p. 2393).

73. ***Pisobia bairdi*** (Cones)

## BAIRD SANDPIPER

A rare spring and abundant fall migrant throughout the state. In fall this species is on the whole the most abundant of the migrant sandpipers. Spring records: Fort Keogh, rare (Thorne, 1895, p. 213); Bitterroot Valley, two, May 18, 1913 (Bailey, 1913b, p. 184). Fall records: Head of Milk River, west of Sweet Grass Hills, and Rocky Mountains, August 10 to 29, 1874 (Cones, 1874b, p. 640); Forts Ellis and Gardiner in August (Grinnell, 1876, p. 652); Yellowstone and Musselshell in September (Allen, 1874, p. 66); Flathead Lake (Silloway, 1901a, p. 41); Fergus County, September 1-15 (Silloway, 1903a, p. 18); Teton County, August 13 to September 4, 1911 (Saunders, 1914a, p. 30); Bitterroot Valley, common fall migrant, August 5 to 7, 1911 (Bailey, MS).

74. ***Pisobia minutilla*** (Vieillot)

## LEAST SANDPIPER

A common migrant throughout the state. In most places found only in fall, but in the eastern part more common in spring. Spring records: Custer and Dawson counties, May 21, 1899, and common later (Cameron, 1907, p. 253); Fort Keogh, common in spring, few in fall (Thorne, 1895, p. 213); Corvallis, two, May 12, 1912 (Bailey, MS). Fall records: West of Sweet Grass Hills, August 9-11, 1873 (Cones, 1874b, p. 640); abundant at Fort Ellis, summer of 1875 (Grinnell, 1876, p. 652); Miles City, six specimens dated August 14 to Sep-

tember 24, 1900 (Hedges, coll. Univ. Montana); Fergus county, abundant August 28 to September 4 (Silloway, 1903a, pp. 18-19); Teton County, August 13 to September 4, 1911 (Saunders, 1914a, p. 130); Bitterroot Valley, rare migrant, six seen August 6, and three August 19, 1911 (Bailey, MS).

75. **Ereunetes pusillus** (Linnaeus)

SEMIPALMATED SANDPIPER

A migrant throughout the state, principally in fall, but in the eastern part commoner in spring. Spring records: Fort Keogh, common in spring, few in fall (Thorne, 1895, p. 213). Fall records: West of Sweet Grass Hills August 11, 1874 (Cones, 1874b, p. 636); Fergus County, rare (Silloway, 1903a, p. 19); Billings, August 11, 1900 (Jones and Dawson, 1900, p. 31); Miles City, August 14 and 15, 1900 (Hedges, in coll. Univ. of Mont.).

76. **Calidris leucophaea** (Pallas)

SANDERLING

A regular fall migrant at Flathead Lake. Specimens taken August 29, 1900 (Silloway, 1901a, p. 41).

77. **Limosa fedoa** (Linnaeus)

MARbled GODWIT

One seen at Priest Butte Lakes, Teton County, May 26, 1912 (Saunders, 1914a, p. 130). A pair of birds seen near Acton, Yellowstone County, in 1917, were apparently breeding by their actions, but neither eggs nor young could be found (Thomas, MS).

78. **Limosa haemastica** (Linnaeus)

HUDSONIAN GODWIT

Taken east of the Milk River by G. M. Dawson (Cones, 1874b, p. 641). One shot at Terry, May 10, 1899. Another seen April 7, 1890, but species questioned (Cameron, 1907, p. 254).

79. **Totanus melanoleucus** (Gmelin)

GREATER YELLOWLEGS

A very common fall migrant throughout the state. Occurs in spring less commonly. There are a few summer records, but whether they are possible breeding birds, or very early fall migrants, is not clear. Spring records: Fort Keogh, common in spring (Thorne, 1895, p. 213); Great Falls, April 17, 1892 (Cooke, 1910a, p. 55); Choteau, May 19, 1912 (Saunders, 1914a, p. 130); and Helena, April 9, 1911. Fall records: Rocky Mountains and Head of Milk River, August 13 and 29, 1874 (Cones, 1874b, p. 642); Big Sandy, September 30, 1860 (Cones, 1874a, p. 497); Missouri River, September (Grinnell, 1876, p. 653); Fort Keogh, few in fall (Thorne, 1895, p. 213); Custer County, common (Cameron, 1907, p. 254); Fergus County, very common middle of August to middle of September (Silloway, 1903a, p. 19); Musselshell and Yellowstone rivers in September (Allen, 1874, p. 66); Gallatin County, common in Septem-

ber (Richmond and Knowlton, 1894, p. 302); Flathead Lake (Silloway, 1901a, p. 41); between Miles City and Billings, August 13, 1900 (Jones and Dawson, 1900, p. 31); Teton County, September 4, 1911 (Saunders, 1914a, p. 130); Bitterroot Valley, common in fall, earliest arrival August 4, 1911 (Bailey, MS). Summer records: Milk River, July 24, 1874 (Cones, 1874b, p. 642); Bitterroot Valley, one at Corvallis in middle of July, 1909, and one at Stevensville in middle of July, 1910 (Bailey, MS); Dutton, May 26 and June 18, 1915 (DuBois, MS).

80.

**Totanus flavipes** (Gmelin)

YELLOWLEGS

Abundant migrant throughout the state in fall. Less common in spring. Fall records are from practically every part of the state, and by nearly all observers. Where definite dates of migration are given, they are as follows: Spring records: Teton County, May 8-23, 1912 (Saunders, 1914a, p. 130); Bitterroot Valley, May 30-31, 1912 (Bailey, MS). Common at Fort Keogh in spring (Thorne, 1895, p. 213). Fall records: Rocky Mountains, August 16 to 29, 1874 (Cones, 1874b, p. 642); Billings, and en route to Miles City, August 12-13, 1900 (Jones and Dawson, 1900, p. 31); Teton County, August 5 to September 4, 1911 (Saunders, 1914a, p. 130); Dutton, August 29, 1916 (Du Bois, MS).

Thorne reports that this species may breed at Fort Keogh, indicating that he evidently found it in summer. Cones records a specimen on the Milk River, July 25, 1874. There is no evidence that it really does breed, and summer birds are probably only very early fall migrants. Silloway (1903a, p. 19) contrasts the abundance of this species with the last mentioned, by the statement that in Fergus County *T. flavipes* occurs in the proportion of three or four to one of *T. melanoleucus*.

81.

**Helodromas solitarius solitarius** (Wilson)

EASTERN SOLITARY SANDPIPER

A migrant, probably throughout the state, and commoner eastward, but in many cases not clearly separated from the western subspecies. But two definite records are known. These are from Miles City, August 14, 1900 (specimens collected by Hedges are in the collection of the University of Montana), and from Gold Creek, Powell County, August 20, 1910 (Saunders, 1912a, p. 24).

82.

**Helodromas solitarius cinnamomeus** (Brewster)

WESTERN SOLITARY SANDPIPER

A common fall migrant throughout the state, occurring also in spring in the eastern part. The only spring records are from Terry, May 7, 1903, and May 9, 1904 (Cooke, 1910a, p. 60). Fall records are abundant everywhere; some of them in July or early August have led observers to believe the species breeds in the state. Dates for fall migration are as follows: Glendive, July 28, 1873 (Allen, 1874, p. 66); head of Milk River and west of Sweet Grass Hills, August 10 to 29, 1874 (Cones, 1874b, p. 643); Teton County, August 5 to 18, 1911, and Sun River, August 13, 1912 (Saunders, 1914a, p. 130); Flathead Lake, August 8,

1900 (Silloway, 1901a, p. 42); Gallatin Valley, August 24, 1908; Mystic Lake, Gallatin County, August 4, 1909; Silver Bow, August 25, 1909; Gold Creek, Powell County, August 20, 1910; Race Track, Deer Lodge County, September 26, 1910; Bitterroot Valley, September 7, 1911 (Bailey, MS); Kalispell, August 1, 1914.

83. ***Catoptrophorus semipalmatus inornatus*** (Brewster)

WESTERN WILLET

A rather rare summer resident, or migrant, principally in the eastern part of the state. There are no records at present west of the continental divide. Breeding records: Breeds, Rocky Mountains (Coues, 1874b, p. 642); Moreland (now Manhattan, Gallatin County), August 19, 1888 (Richmond and Knowlton, 1894, p. 302); two nests found near Belgrade, Gallatin County, 1911, by W. L. Thomas (Saunders, 1913a, p. 116); nests commonly near Billings (Thomas, MS).

Migration records: Custer and Dawson counties, May 25, 1902; May 27, 1903; September 5 and 8, 1903 (Cameron, 1907, p. 254); Fort Keogh, rare in spring (Thorne, 1895, p. 213); Lewistown, May 2, 1903 (Silloway, 1903a, p. 20); Dutton, eight, May 9, 1917 (DuBois, MS).

84. ***Bartramia longicauda*** (Bechstein)

UPLAND PLOVER

Formerly an abundant summer resident throughout the state on the prairies and in the valleys of the mountainous half. Now still found in many localities and common locally, but becoming steadily rarer. Breeding records: Nests with fresh eggs found June 14 to July 15, 1873 (Allen, 1874, p. 67); Quaking Ash River, eggs and bird obtained June 26, 1874 (Coues, 1874b, pp. 644-645); abundant, upper Missouri, young obtained in July (Grinnell, 1876, p. 653); common to eastern base of mountains (Cooper, 1869b, p. 298); Yellowstone River (McChesney, 1879, p. 2393); Dearborn River, nest with eggs hatching, June 21 (Croft, 1882, p. 107); Custer and Dawson counties, nests and young found early in July (Cameron, 1907, p. 254); Flathead Lake, adult and downy young taken June 21, 1901 (Silloway, 1901a, p. 42); Fort Keogh, breeds (Thorne, 1895, p. 213); Fergus County, nests at Lewistown, May 25, 1904 (Silloway, 1904b, p. 149, and 1903a, p. 20); Gallatin County, July 30, 1908 and July 22, 1909 (Saunders, 1911a, p. 34); Teton County, June 27, 1911 (Saunders, 1914a, p. 130); newly hatched young found near Billings, June 7, 1918 (Thomas, MS).

Migration dates: Big Sandy, September 6, 1903 (Coubéaux), and Columbia Falls, average May 12, earliest April 27, 1894 (Cooke, 1910a, pp. 66-67).

85. ***Tryngites subruficollis*** (Vieillot)

BUFF-BREASTED SANDPIPER

Several flocks, numbering fifty to seventy-five birds each, were found in the Lake Basin country of Yellowstone County, September 1, 1917. Several birds were secured for identification (Thomas, MS).

86.

**Actitis macularia** (Linnaeus)

## SPOTTED SANDPIPER

An extremely abundant summer resident throughout the state. Breeds along rivers and streams in the prairies and valleys, about the shores of lakes, and up into the mountains to the limit of the Canadian zone. Practically all reports from all parts of the state contain references to this bird and its breeding.

The species nests principally in June. A bird taken in the Bitterroot Valley on May 27, 1910, contained an egg ready to be deposited (Bailey, MS). This is the only indication of nesting in May. The earliest nest recorded is June 4, 1901, at Lewistown (Silloway, 1903a, p. 20). Other dates of nesting are June 18 to



Fig. 13. NEST AND EGGS OF THE SPOTTED SANDPIPER. CHOTEAC, TETON COUNTY; JUNE 10, 1912.

27, 1900, at Flathead Lake (Silloway, 1901a, pp. 32-33); Lake Bowdoin, June 28, 1903 (Willett, 1907, p. 105). An egg has been found freshly laid in the nest as late as June 29, 1915, at Flathead Lake. Downy young have been found in Teton County as early as June 22, 1912 (Saunders, 1914a, p. 130) and young able to fly in Powell County, as early as July 31, 1910 (Saunders, 1912a, p. 24).

Spring migration comes about the middle of May, somewhat earlier west of the continental divide. Dates are as follows: Columbia Falls, earliest May 4, 1896, average May 7 (Cooke, 1910a, p. 70); Custer County, May 18, 1905 (Cameron, 1907, p. 254); Gallatin County, May 21, 1909, German Gulch, Silver Bow County, May 28, 1910, Anaconda, May 17, 1911, and Teton County, May 17, 1912 (Saunders, 1912a, p. 24 and 1914a, p. 130); Bitterroot Valley May 12, 1911, May 17, 1912, and May 8, 1913 (Bailey, MS). Fall departure evidently

takes place in August. The latest dates that I can find are Gallatin County, August 18, 1908, Shields River, Park County, August 8, 1909, Gold Creek, Powell County, August 17, 1910, and Flathead Lake, August 21, 1914. Other August dates, probably indicating about the latest dates of the species for those years, are August 12, 1874 (Cones, 1874b, p. 644), and Billings, August 13, 1900 (Jones and Dawson, 1900, p. 29).

87. **Numenius americanus** Bechstein

LONG-BILLED CURLEW

Formerly a very abundant summer resident throughout the state, breeding on the plains and prairies of the eastern part, and in the broad mountain valleys of the western half. Still found in considerable numbers in the more remote districts, but becoming steadily rarer. Nearly all observers report this species from all parts of the state, and the earlier ones note its abundance.

The bird nests in May and June, most eggs having been found in May. Silloway records many nests from Fergus County, the earliest date for eggs being May 5, and the latest June 1 (1900a, pp. 79-82, and 1902a, pp. 33-34). Other nesting dates are May 18, 1906 (Abbott, 1906, p. 152); May 20, Fort Benton (Croft, 1882, p. 107). An unusually late date is from Frenchman's River, July 4, 1874 (Cones, 1874b, p. 645). Eggs were found hatching at Dutton, June 6, 1915 (DuBois, MS).

Spring migration takes place in April. Dates are as follows: Terry, average April 16, earliest April 7, 1906, and Big Sandy, average April 19, earliest April 13, 1903 (Cooke, 1910a, p. 72); Lewistown, April 24, 1899, and April 25, 1900 (Silloway, 1900a, p. 79); Teton County, April 20, 1912 (Saunders, 1914a, p. 130); Bitterroot Valley, first seen April 7, 1911, and not again till April 20, 1911 (Bailey, MS); Dutton, April 28, 1915, April 26, 1916, and April 22, 1917 (DuBois, MS). Fall migration evidently takes place in August and September, but definite dates are lacking. Silloway gives the middle of September (1903a, pp. 20-23), but the only definite date for this month is September 4, 1911, for Teton County (Saunders, 1914a, p. 130). In my experience the great flocks of curlews that gather around the prairie ponds in July and August are gone before September.

88. **Numenius borealis** (J. R. Forster)

ESKIMO CURLEW

Formerly a migrant. May still occur in small numbers, but recent records are lacking. There are two reports of its occurrence in the state, but one of these is probably not authentic. Three specimens from the Upper Missouri collected in 1841 by Lieut. Warren (Baird, 1858, p. 741). Breeding at Fort Benton, downy young caught in July (Cooper, 1869a, p. 83). This record is obviously to be questioned, as other sources do not indicate that this species ever bred so far south.

89. **Squatarola squatarola** (Linnaeus)

BLACK-BELLIED PLOVER

Several birds of this species were seen at Priest Butte Lakes, September 4,

1911 (Saunders, 1914a, p. 130). Taken every fall by hunters at Flathead Lake (Sloanaker, MS). These are the only records.

90. **Charadrius dominicus dominicus** (Müller)

GOLDEN PLOVER

A migrant in the eastern part of the state. There are no records west of the continental divide, and records east of it are not common. Reported at St. Mary's Lake, October 1, 1853, by Suckley (Baird, 1858, p. 691). A migrant in the Big Horn region (McChesney, 1879, p. 2392). Regular migrant in Fergus County, common eastward (Silloway, 1903a, p. 23). Occasional fall migrant in Custer and Dawson counties. Flocks seen September 9, 16 and 30, 1898 (Cameron, 1907, p. 255). Abundant near Billings in August and early September, 1917, the last seen September 10 (Thomas, MS).

91. **Oxyechus vociferus** (Linnaeus)

KILLDEER

A very abundant summer resident throughout the state, recorded by all observers. Occurs in the prairies and valleys of the mountains, in the Upper Sonoran and Transition zones, but not in the mountains themselves. In the Bitterroot Valley it is reported as a permanent resident, and it is also recorded in winter from other points west of the continental divide.

Nesting data: Indications are that this species begins nesting in late April or early May. The birds leave the flocks in which they arrive, and are scattered out in pairs on the breeding grounds, by the second week in April. There are few definite dates of nesting on record, however, though the species undoubtedly is one of the commonest breeding birds of the state. Milk River, four eggs, June 30, 1874 (Cones, 1874b, p. 633). Bitterroot Valley, a nest with three eggs, April 28, 1913, had four eggs April 30. Another nest found April 30, 1913, with four eggs, which hatched May 18 and 19 (Bailey, MS). Young able to fly have been seen in the Gallatin Valley early in June.

Migration: This species arrives late in March or early in April. My experience shows that the birds are first found in flocks in the larger river valleys, and eight or ten days later scatter out in pairs to the breeding grounds, places that are often many miles from the main river valleys, and a thousand feet higher in elevation. Dates of spring arrival are as follows: Terry, average April 6, earliest March 29, 1897 (Cameron); Big Sandy, average April 6, earliest April 3, 1904 (Cooke, 1910a, p. 87); Gallatin Valley, April 2, 1909, Silver Bow, April 8, 1910 (Saunders, 1912a, p. 24); Collins, Teton County, March 26, 1912 (Saunders, 1914a, p. 130); Helena, March 26, 1911; Highwood, March 27, 1914, and Dutton, March 21, 1915, and March 17, 1917 (DuBois, MS). Fall migration appears to be in September or October. Few dates are to be had, and these indicate little because so widely separated. Pioneer, Powell County, September 13, 1910 (Saunders, 1912a, p. 24); Choteau, October 12, 1912 (Saunders, 1914a, p. 130); Dutton, October 12, 1916 (DuBois, MS).

The occurrence of this species in Montana in winter seems to be something

entirely new, as the winter range of the species is usually given as much farther south. This fact is first recorded by Bailey (1913a, p. 94), and in his notes from the Bitterroot Valley he classes the bird as resident. Another winter record is that of three birds at Missoula, December 25, 1915 (Kittredge, 1916, p. 30).

92. ***Podasocys montanus*** (J. K. Townsend)

MOUNTAIN PLOVER

A rather rare summer resident of the prairie regions of the state, east of the continental divide. Breeding records: July 1 to 23, 1874, Frenchman's River and Milk River. Eggs collected July 9 (Cones, 1874b, pp. 634-635); Haymakers Creek, young secured August 1, 1874 (Grinnell, 1876, p. 652); rare to eastern base of mountains (Cooper, 1869b, p. 298); rare, Fort Keogh (Thorne, 1895, p. 213); Custer and Dawson counties, rare, eggs May 23, and newly hatched young June 15, 1898 (Cameron, 1907, pp. 255-256); Fergus County, summer resident, May to September (Silloway, 1903a, p. 24); Sun River and Great Falls (Cooke, 1910a, p. 94). The only record within the mountain valleys, west of the true prairie region of the state, is Three Forks, June, 1909, observed by Thomas (Saunders, 1911a, p. 34). There are no definite dates of migration on record for this species. Silloway's statement, given above, Allen's records in September, and McChesney's statement that it is abundant in spring at Fort Custer (1879, p. 2393) are all the data available relating to migration.

93. ***Dendragapus obscurus obscurus*** (Say)

DUSKY GROUSE

A permanent resident in mountains of the southern part of the state, intergrading with the form *richardsoni*. Few birds are entirely typical of this subspecies, the great majority being more nearly allied to *richardsoni*. Records: Big Horn Mountains (McChesney, 1879, p. 2393); Traill Creek, Park County (Grinnell, 1876, pp. 650-651); Gallatin County (Richmond and Knowlton, 1894, p. 302; Saunders, 1911a, p. 35).

94. ***Dendragapus obscurus fuliginosus*** (Ridgway)

SOOTY GROUSE

Permanent resident in the mountains of extreme western Montana, intergrading with *richardsoni*. Records: East to western spurs of Bitterroot Mountains, Montana (Bendire, 1888a, p. 32). Big Hole Basin (Forrest, 1914, p. 195). Intergrading with *richardsoni* at Columbia Falls (Bendire, 1892, p. 50).

95. ***Dendragapus obscurus richardsoni*** (Douglas)

RICHARDSON GROUSE

A permanent resident of the mountainous half of the state, extending its range east to the easternmost mountain ranges, and intergrading with *obscurus* on the south and *fuliginosus* on the west. All observers in the mountains record this species. The easternmost records of this species are Big Horn Mountains (Mearns, 1904, p. 20), Big Snowy Mountains (Silloway, 1903a, p. 24), and Belt Mountains (Williams, 1882a, p. 63).

In most mountains of the state this species is still abundant, but in the vicinity of some of the larger towns, such as Butte, it is becoming very rare. While the birds are permanent residents, they have a slight migratory movement up and down the mountain slopes with the season, but, curiously, in just the reverse direction from that of most mountain birds, coming down to lower elevations in the spring, and going up to the higher ridges in fall. The downward movement in spring takes place in April or May, according to how fast the snow leaves the lower mountain slopes. Then the courtship and mating of the birds takes place, and nesting begins by the middle of May. There are no definite dates for actual nesting given in any publications, and I know of but one definite date, that of a nest and eleven eggs found by a U. S. Forest Service officer in German Gulch, Silver Bow County, May 31, 1910. Young only a few days out of the egg are first seen about the middle of June. These young may be found with the female parent in the lower mountain meadows till August and early September, when they are nearly full grown. The food late in the season is largely grasshoppers, and the time when the first snows of the fall kill the grasshoppers in the latter half of September, marks the time when the birds move up the mountain slopes to their winter quarters. On the high ridges the snow is usually blown away by the wind, and berries, which form the principal winter food, may be found in quantity. When the berries are covered, the birds feed on fir and pine needles and appear to thrive on such a diet in spite of the intense cold at these altitudes.



Fig. 14. FEMALE FRANKLIN GROUSE. FLATHEAD NATIONAL FOREST, NEAR BELTON. PHOTO BY A. D. DuBOIS.

96.

**Canachites franklini** (Douglas)

## FRANKLIN GROUSE

A common permanent resident of the mountains of the western part of the state, ranging east to the eastern slopes of the continental divide. The easternmost boundaries of its range are marked by the following records: St. Mary's Lake (Baird, 1858, p. 624); Belt Mountains (Williams, 1882a, p. 61); Teton and northern Lewis and Clark counties, on headwaters of Sun River (Saunders, 1914a, p. 131); Jefferson and Silver Bow counties east to the divide (Saunders, 1912a, p. 24); and Big Hole Basin (Forrest, 1914, p. 194).

This bird is almost universally known in Montana as "fool hen". (See fig. 14.) Unlike the dusky grouse, it shows no migratory movement up or down the mountain slopes, but remains in the dense spruce and arbor-vitae forests of the Canadian zone throughout the year. There are no data on the nesting of this bird in Montana. The nesting probably takes place in June, for half-grown young are to be seen in July.

97.

**Bonasa umbellus togata** (Linnaeus)

## CANADA RUFFED GROUSE

A common permanent resident in all mountain ranges of the state, in the pine hills of the eastern part, and in the lower foothills. The easternmost records are as follows: Big Horn Mountains (McChesney, 1879, p. 2392); Fergus County (Silloway, 1903a, p. 24); and Long Pine Hills, Carter County (Visher, 1911, p. 10). All observers in the mountains west of these points have recorded this species.

The nesting takes place in June, or perhaps begins in late May. The only definite dates given are June 7, 15, and 16, 1902, at Flathead Lake. The eggs on the last date were ready to hatch (Silloway, 1903b, p. 297). This species inhabits the Transition and lower Canadian zones, being more abundant in the Transition. It is found in mixed thickets of willow, alder, cottonwood and spruce, along the beds of the lower mountain streams.

98.

**Bonasa umbellus umbelloides** (Douglas)

## GRAY RUFFED GROUSE

This subspecies has been attributed to Montana by many writers. In fact most of the records cited above are for this form rather than *togata*. After trying in vain to work out the ranges of two subspecies in the state, and examining as many specimens as possible, I have come to the conclusion that the two birds range together over the greater part of the state, and that what is written above under *togata* can apply equally as well to *umbelloides*. In regions where collecting has been done, and specimens carefully determined, the majority of the birds belong to *togata*. If *umbelloides* always has a gray tail, as the descriptions state, then *togata* ranges everywhere in the state that I have been. Montana specimens which I have examined, determined to belong to both forms, do not show enough difference to warrant subspecific distinction as far as this state is

concerned. I am of the opinion that *togata* only should be listed from the state, and that those birds showing the characters of *umbelloides* should be considered individual variants. Until more extensive collecting has been done, this appears to be the best solution of the problem.

99. **Lagopus lagopus lagopus** (Linnaeus)

WILLOW PTARMIGAN

Three birds of this species were taken in the Glacier National Park in the winter of 1913-14 (Stanford, 1914, p. 399). These are now mounted and displayed in the lobby of the Glacier Park Hotel.

100. **Lagopus leucurus leucurus** (Swainson)

WHITE-TAILED PTARMIGAN

Resident of the high mountains of the northwestern part of the state, south to northern Lewis and Clark County along the continental divide. Found in several ranges west of the divide, but just where the southern limit occurs in these ranges is not determined. Records: Bitterroot Mountains and St. Mary's Lake (Bendire, 1892, p. 83); Teton and northern Lewis and Clark counties (Saunders, 1914a, p. 131); Glacier National Park, found about Sperry Glacier and other high points. There are no data on the nesting of this species in the state, but broods of half grown young may be seen in Glacier Park early in August. One was taken in the Beartooth Mountains of Carbon County by sportsmen (Thomas, MS).

101. **Tympanuchus americanus americanus** (Reichenbach)

PRAIRIE CHICKEN

One bird taken by John R. Bane on the Hervey Bench, southwest of Huntley, in the fall of 1917 (Thomas, MS). At present the only record for the state.

102. **Pedioecetes phasianellus columbianus** (Ord)

COLUMBIAN SHARP-TAILED GROUSE

A fairly common permanent resident of the mountain valleys in the western half of the state, intergrading eastward with *campestris*. The line between the ranges of this and the next subspecies is not very well worked out, but it is probable that west of the divide all birds belong to *columbianus*. Those from mountain valleys east of the divide have proven mostly intergrades, while those of the prairies are probably *campestris*, though some specimens, from as far east as the Dakota border show the characters of the western race.

This bird was formerly very common, but is becoming rarer each year, though, except in the vicinity of the larger cities, it still occurs in considerable numbers. It is confined to open grass lands and grain fields of the valleys though occasionally found among cottonwoods and willows or pine hills in winter. It is not found in the mountains, nor anywhere higher than the Transition zone.

103. ***Pedioecetes phasianellus campestris*** Ridgway

## PRAIRIE SHARP-TAILED GROUSE

A permanent resident of the prairies and plains in the eastern half of the state, intergrading westward with *columbianus*. In the less thickly settled regions this bird is still abundant, but in most places it is rapidly decreasing in numbers, though, even in regions that have been long settled it remains in small numbers in the grain fields.

There is not a great deal published about the nesting of this species, and the only definite dates are those of Silloway for the vicinity of Lewistown. These are May 19 and 24, 1900, and June 4, 1901 (1903a, p. 25), and May 28, 1901, two nests (1902a, pp. 32-33).

104. ***Centrocercus urophasianus*** (Bonaparte)

## SAGE HEN

A permanent resident of sage-brush plains of the eastern part of the state, extending westward into the mountain valleys wherever there are large areas of sage-brush. There are no recent records west of the continental divide, but the bird is reported as formerly common at Silver Bow (Saunders, 1912a, p. 25). It was once abundant nearly throughout the state, but is becoming rare everywhere. In the northwestern part of the prairie region there is a large area where sage-brush is unknown and where this species is absent.

There have been but few dates published for the nesting of this species. Willett records about fifty nests found between May and July, 1903, in Choteau and Valley counties (probably what is now Phillips County). These nests usually contained ten to thirteen eggs, with the extremes ranging from eight to fifteen (1906a, p. 75).

105. ***Zenaidura macroura marginella*** (Woodhouse)

## WESTERN MOURNING DOVE

An abundant summer resident throughout the state, becoming somewhat less common northward. Reported as not common at Flathead Lake (Silloway, 1901a, p. 45), and in Teton County (Saunders, 1914a, p. 131). In all other localities reported as abundant.

There are but few nesting dates given. These are June 18, 1862 (Cooper, 1869b, p. 295); June 21, 1909, a dozen nests in the Bitterroot Valley; June 25, 1911, three nests, one with young; and first young out of nest seen June 28, 1913 (Bailey, MS). I have found a nest with eggs in Teton County as late as July 9, 1912. This bird is very abundant in sage-brush where it nests commonly on the ground, and in cultivated land, where it nests both on the ground and in bushes, frequently those overhanging a stream.

Migration dates in spring: Bozeman, May 9, 1909; Stuart, Silver Bow County, April 29, 1911 (Saunders, 1912a, p. 25); Choteau, May 19, 1912 (Saunders, 1914a, p. 131); Great Falls, May 5, 1887 (Williams, 1888a, p. 17); Bitterroot Valley, April 30, 1910, April 29, 1911, May 4, 1912, and May 4, 1913 (Bailey,

MS). Fall dates: Sedan, Gallatin County, September 26, 1908; Race Track, Deer Lodge County, September 26, 1910 (Saunders, 1912a, p. 25).

106.

***Cathartes aura septentrionalis* Wied**

TURKEY VULTURE

Formerly abundant, at least in the eastern half of the state. Now rare everywhere, and not recorded at all from the extreme northern part. The slaughter of the bison in the early days has been given as the reason for the former abundance and present rarity of this species. Early records: Yellowstone River, 1872 (Allen, 1874, p. 65); Fort Custer, 1878 (McChesney, 1879, p. 2392), and 1889 (Mearns, 1904, p. 20); abundant generally, 1862 (Hayden, 1862, p. 151); abundant on the plains of the upper Missouri (Grinnell, 1876, p. 650); common, Gallatin County, 1888-90 (Richmond and Knowlton, 1894, p. 302).

Recent records: Custer and Dawson counties, formerly abundant, numerous in the fall of 1883, nested till 1887, and records of its occurrence until 1906 (Cameron, 1907, p. 259); Gallatin County, rare in 1909 (Saunders, 1911a, p. 35); seen at Lombard, April 23, 1909; Deer Lodge and Silver Bow counties, rare, but reported nesting; seen November 1, 1910 (Saunders, 1912a, p. 25); Ravalli County, rare, seen May 4 and November 29, 1911, reported to breed in the mountains (Bailey, MS). Occurs near Billings, where it is neither common nor rare, and probably breeds (Thomas, MS).

107.

***Circus hudsonius* (Linnaeus)**

MARSH HAWK

An abundant summer resident on the plains and prairies, and in the mountain valleys throughout the state. Reported by nearly all observers, and noted as breeding. One of the most abundant of Montana hawks. Winters occasionally west of the continental divide.

Nesting data: Marsh Hawks evidently nest the last of May in Montana. Nesting occupies about two months, and the young are on the wing in August, when the species suddenly becomes very abundant in the valleys. Dates for nesting are as follows: May 26, 1912, nest with the first egg laid. Set of six completed June 6, Teton County. Another in same locality had the first egg May 27 and four eggs June 8, 1912 (Saunders, 1913b, pp. 99-104). Fergus County, nest with the first egg May 18, 1901, and five eggs May 25. A second nest May 30, with five eggs, advanced in incubation (Silloway, 1903a, p. 45).

Migrations: Spring arrival, Bozeman, March 19, 1909; Stuart, Silver Bow County, April 16, 1911; Teton County, April 7, 1912; Dutton, April 3, 1915; March 22, 1916; April 11, 1917 (DuBois, MS). Fall departure: Three Forks, October 17, 1909; Missoula, October 30, 1902 (Elrod, coll. Univ. Montana).

Winter record: A few remain all the year in the Bitterroot Valley (Bailey, MS).

108.

***Accipiter velox* (Wilson)**

SHARP-SHINNED HAWK

A common summer resident in the mountains of the western half of the

state. Records in the eastern part of the state are few. There are no records of this species by the earlier observers, which leads to the belief that the species has become common in recent years. Winters occasionally on the west side of the divide. Records in the eastern half of the state: Custer and Dawson counties, summer resident, probably breeds (Cameron, 1907, p. 260); Fergus County, nest and four eggs, June 6, 1900 (Silloway, 1903a, pp. 27-28, and 1901c, pp. 70-71); nest at Flathead Lake, July 3, 1900, four eggs advanced in incubation (Silloway, 1901a, p. 31). Young are nearly full grown and ready to leave the nest by about August 25 in Powell and Deer Lodge counties. This bird nests most commonly in the mountains in low thick growths of spruce. In the prairie region they probably nest in cottonwood groves, but the nest has yet to be found there.

Migration dates: Spring. May 13, 1909, Big Creek, Park County; April 12, 1910, Divide Creek, Silver Bow County; April 23, 1911, Anaconda; May 8, 1912, Choteau. Fall. October 6, 1908, Gallatin County; September 26, 1910, Race Track; September 18, 1911, and September 13, 1912, Choteau.

Winter records: Silver Bow, January 2, 1911 (Saunders, 1912a, p. 25); Bitterroot Valley, usually rare in winter, but common at that season when Redpolls are abundant (Bailey, MS).

109. ***Accipiter cooperi* (Bonaparte)**

COOPER HAWK

Summer resident throughout the state but commoner in the western half in the mountains. Less common than *A. velox*. There are no nesting records from extreme eastern Montana, where it may be only a migrant, though there are several records in late summer. There are no definite nesting records from any section; so far as records show the nest has never been found in the state. In most places the hawk is regarded as rare, but Bendire calls it the commonest hawk in southwestern Montana (1892, p. 194).

Migration dates: Dawson County, April 30, 1903 (Cameron, 1907, p. 260); Silver Bow County, April 30, 1910; Anaconda, April 20, 1911; Choteau, April 22, 1912. Fall: Custer County, September 13, 1893 (Cameron, l. c.).

110. ***Astur atricapillus atricapillus* (Wilson)**

EASTERN GOSHAWK

A fall migrant through the eastern half of the state, extending its range west into the mountains east of the continental divide, and perhaps farther westward. This form may be a summer resident in some parts of the state, but the only definite identification of a breeding bird proved to be that of the western subspecies. Records: Custer and Dawson counties, September 22, 1903, October 18, 1905, November 19, 1905, September-October, 1906, October 18-27, 1906 (Cameron, 1907, pp. 261-262). Gallatin County, three seen and one taken (Richmond and Knowlton, 1895, p. 302). Gallatin River, October 30, 1908 (Saunders, 1911a, p. 36). Park County, October 21-25, 1908.

Winter record: Gallatin County, December 21, 1908 (Saunders, 1909a, p. 35).

111. ***Astur atricapillus striatulus* Ridgway**

## WESTERN GOSHAWK

Summer resident in the mountainous half of the state. The Goshawk has been found in the breeding season in Gallatin County (Saunders, 1911a, p. 36), in Lewis and Clark County (Saunders, 1914a, p. 132), and in the Big Hole Basin, where a nest and four young were found June 1, 1913 (Forrest, 1914, p. 194). In the last case the birds were definitely identified as belonging to the western race, but in the other cases the birds may have been of either race.

Goshawks are reported to be rare winter visitors in the Bitterroot Valley, where they are probably of the western race (Bailey, MS). Kalispell, one, September 22, 1917 (Sloanaker, MS).

112. ***Buteo borealis krideri* Hoopes**

## KRIDER HAWK

Seen between Billings and Miles City, August 13, 1900 (Jones and Dawson, 1900, p. 32). Nests at Toluca, Big Horn County, where a specimen was taken in May, 1918 (Thomas, MS).

113. ***Buteo borealis calurus* Cassin**

## WESTERN RED-TAIL

A common summer resident, found throughout the state, but evidently most abundant in the mountains of the western half. In the Canadian zone of the mountains it is the only common hawk. Reported to breed in Custer and Dawson counties (Cameron, 1907, p. 262); Fergus County (Silloway, 1903a, p. 29); Flathead Lake (Silloway, 1901a, p. 46); Gallatin County (Saunders, 1911a, p. 36); southwestern Montana (Saunders, 1912a, p. 25); Big Hole Basin (Forrest, 1914, p. 194); Belt Mountains (Williams, 1882a, p. 63); Teton County (Saunders, 1914a, p. 132); Bitterroot Valley, rare (Bailey, MS). A nest and two eggs reported between Forts Union and Benton, June 18, 1862 (Cooper, 1869b, p. 295). No other definite dates for nesting are available, but I have found the nests twice in June, in the Sixteen Mile Canyon, Gallatin County, in 1909, and near Bernice, Jefferson County, in 1911, when it was impossible to ascertain whether they contained eggs or young. These nests, and others that I have located in the Sun River country, were built on rock cliffs, and I believe this species nests more frequently in such situations than in trees in western Montana.

Migration dates: Sedan, Gallatin County, April 1, 1909; Silver Bow County, April 5, 1910; Brackett Creek, Gallatin County, October 12, 1908; Three Forks, October 17, 1909; Deer Lodge County, October 9, 1910 (Saunders, 1912a, p. 25).

114. ***Buteo swainsoni* Bonaparte**

## SWAINSON HAWK

A common summer resident on the prairies and in the mountain valleys throughout the state. Reported by nearly all observers, and from all regions

where extensive ornithological work has been done except Flathead Lake. It is evidently much commoner on the prairies of the eastern half of the state than in the mountain valleys of the western half. It nests in the Upper Sonoran and Transition zones, never in the mountains, but only in the valleys of lower foothills. It breeds most commonly in cottonwood groves along streams, but also in evergreens growing along the foothills.

Dates of nesting: The earliest date for eggs in the state is May 7, in Custer County (Cameron, 1913, p. 170). Silloway records a set of three with incubation advanced on May 9, 1903 (1903a, pp. 29-30). Cameron gives June 27 as the latest date he has seen eggs, and Cones (1874b, pp. 625-626) records eggs at the forks of the Milk River, July 16, 1874. According to my experience the majority of birds do not nest until after the middle of May, and nests may be found most commonly in June. The young are out of the nest and able to fly at any time from the first of July to the last of August.

Migration dates: Gallatin Valley, April 17, 1909. Silver Bow, April 8, 1910 (Saunders, 1914a, p. 25). Cameron records a large flight of about 2000 birds in Custer County, in April, 1890 (1907, p. 263). Fall dates seem very irregular. Cameron states that the birds leave soon after the young are able to fly. The only fall dates which I have are Sun River, September 27, 1912 (1914a, p. 132), and Bridger Mountains, November 18, 1908.

#### 115. ***Archibuteo lagopus sancti-johannis*** (Gmelin)

##### ROUGH-LEGGED HAWK

A winter visitor in the mountain valleys and on the prairies. Common locally, and apparently distributed through most of the state, but not reported from the Bitterroot Valley nor from Fergus County. I have found it abundant in winter in the Gallatin Valley (1911a, p. 36), rare in Teton County (1914a, p. 132), and have not observed it in southwestern Montana. In Custer and Dawson counties it is reported common, but becoming rare (Cameron, 1907, pp. 263-264). It is also reported from Fort Custer in February, 1878 (McChesney, 1879, p. 2391), and from the vicinity of Billings in winter (Thomas, MS).

There are a number of summer records of this species, and it possibly breeds, or formerly did so. Cameron records a nest found in the badlands in May, of which the identification is doubtful. Common in summer at Flathead Lake (Silloway, 1901a, p. 46); abundant at Gardiner at the end of August (Grinnell, 1876, p. 649).

Migration: In the Gallatin Valley this species first appeared October 9, 1908, and was last seen April 17, 1909.

#### 116. ***Archibuteo ferrugineus*** (Lichtenstein)

##### FERRUGINOUS ROUGH-LEG

An abundant summer resident of the prairies in the eastern part of the state. Less common in valleys of the mountains, and rather rare west of the continental divide. Nearly all observers record it in the eastern regions. It is reported to winter in the eastern part of the state, in Custer and Dawson coun-

ties (Cameron, 1907, p. 264), in Fergus County (Silloway, 1903a, pp. 30-31), and at Billings (Thomas, MS). The westernmost records for this species are Gallatin County (Saunders, 1911a, p. 26), Gold Creek, Powell County (Saunders, 1912a, p. 25), and Kalispell (Sloanaker, MS).

The earliest date for nesting is April 25, 1900, in Fergus County (Silloway). The latest date for eggs is June 2, 1912, in Teton County (Saunders). The earliest date for young is May 21, 1916, at Dutton (DuBois, MS). In addition to these there are numerous other nesting notes from various points in eastern Montana, the dates between the extremes given.

Migration dates: Dates of migration are not available from most places, as many of the birds winter in the eastern part of the state. The only records I have are Stuart, Silver Bow County, April 16, 1911, Pipestone Creek, Jefferson County, October 9, 1910, and Kalispell, November 18, 1916, one taken (Sloanaker, MS).

117.

***Aquila chrysaetos* (Linnaeus)**

## GOLDEN EAGLE

A permanent resident throughout the state. Formerly common, now rather rare. Reported by most observers from various localities scattered over the entire state. Nests mainly in the pine hills and badlands in the eastern part of the state, and in the mountains in the western half. Seldom seen in the valleys or on the prairies in summer, but frequently common in such places in winter.

Nesting data: Pryor's Fork of the Yellowstone, near Fort Custer, a nest found with eggs May 22, 1883, by Dr. J. C. Merrill (Bendire, 1892, p. 268). Other detailed accounts of the nesting of this species in Montana may be found in the writings of Cameron (1905b, pp. 158-167, and 1908b, pp. 251-268).

118.

***Haliaeetus leucocephalus alascanus* C. H. Townsend**

## NORTHERN BALD EAGLE

A rare permanent resident throughout the state, though in greatest numbers in the mountains of the northwestern part. Commoner in November and March than at other seasons, but evidently found throughout the year.

Summer records: Rare on the Yellowstone and Musselshell (Allen, 1874, p. 65). Seen on the Missouri (Grinnell, 1876, p. 650). Generally distributed (Hayden, 1862, p. 153). Bozeman, July, 1909 (Saunders 1911a, p. 36). Rare at Flathead Lake (Silloway, 1901a, p. 47). Rare breeder in Ravalli County (Bailey, MS). Belton, June 30, 1915, and Dutton, June 23, 1916 (DuBois, MS). There is little that is definite about the nesting of this species in the state, nor any dates to show when it nests. A pair are reported to have nested on the Boulder River near Big Timber (Thomas, MS).

Migration dates: Custer County, March 17, 1905, and November 6, 1905 (Cameron, 1907, p. 265); Gallatin County, November 10, 1908 (Saunders, 1911a, p. 36); Bitterroot Valley, March, 1911 (Bailey, MS). I found this species almost common on several days from November 23 to December 2, 1909, in the Long Pine Hills of extreme southeastern Carter County. The birds were high

overhead, evidently migrating, for they were all flying southeast against a strong wind.

The only specimen definitely identified as to subspecies, so far as I know, is one from the South Fork of the Flathead River (Saunders, 1914a, p. 132).

119. **Falco rusticolus rusticolus** Linnaeus

GRAY GYRFALCON

One record only. One seen at Collins, Teton County, January 8, 1912 (Saunders, 1914a, p. 132).

120. **Falco mexicanus** Schlegel

PRAIRIE FALCON

A rather rare permanent resident throughout the state. Apparently only a summer resident in most places. Records west of the continental divide are few.

Summer and nesting records: Two Forks of the Milk River, nest and young, July 18, 1874 (Cones, 1874b, pp. 621-622, and 1874a, p. 596); Cone Butte, in Judith Mountains, not common (Grinnell, 1876, p. 649); various localities along the Upper Missouri (Hayden, 1862, p. 152); several specimens from the Upper Missouri and Yellowstone (Baird, 1858, p. 12); Custer County, permanent resident, nesting in the badlands, two eggs May 10, 1906 (Cameron, 1907, pp. 265-266); Gallatin County, rare summer resident (Saunders, 1911a, p. 36); Gold Creek, Powell County, July-August, 1910 (Saunders, 1912a, p. 25); Teton County, summer resident on prairies (Saunders, 1914a, p. 132); Wild Horse Island, Flathead Lake, July 2, 1914 (Saunders, 1915b, p. 112); Bitterroot Valley, rare in winter, one taken January 10, 1911, one seen January 15, 1912 (Bailey, MS).

121. **Falco peregrinus anatum** Bonaparte

DUCK HAWK

A rather rare summer resident throughout most of the state; perhaps in some localities a permanent resident. Records are almost lacking west of the continental divide, and the bird appears to be, on the whole, commoner eastward in the prairies.

Nesting records: Nest and young at Two Forks of Milk River, July 17, 1874 (Cones, 1874b, p. 622); nests and young along Missouri (Grinnell, 1876, p. 649); nest on Squaw Creek, Gallatin County (Saunders, 1911a, p. 36); nests on cliffs along the Yellowstone near Billings (Thomas, MS).

Migration dates: Spring: Gallatin Valley, April 17, 1909; German Gulch, Silver Bow County, March 23, 1910; Anaconda, April 23, 1911 (Saunders, 1910a, p. 132). Fall: Rock Creek, Park County, October 26, 1908. Cameron records the bird as resident in Custer and Dawson counties so it evidently occurs there in winter. Deer Lodge and Silver Bow counties are the only points where it has been recorded on the west side of the divide.

122.

**Falco columbarius columbarius** Linnaeus

## PIGEON HAWK

A rare summer resident locally in the mountains, occurring in fall migration in parts of the valleys. The status of this subspecies in its relation with the next in this state is not clear. This form has been found in the breeding season at Flathead Lake (Silloway, 1903b, p. 302). There are a number of records for eastern Montana, most of them in late summer and fall. There are no records later than 1902, perhaps indicating that the species is decreasing. Custer and Dawson counties, common fall migrant; August 20, 1899, and September 5, 1899 (Cameron, 1907, p. 267). Lewistown, October, 1902 (Silloway, 1903a, p. 32). Yellowstone River in September (Allen, 1874, p. 64). Big Horn Mountains, August 27 (McChesney, 1879, p. 2391). Abundant along streams (Hayden, 1862, p. 152).

123.

**Falco columbarius richardsoni** Ridgway

## RICHARDSON PIGEON HAWK

A rare summer resident of northwestern Montana, also occurring in various other parts of the state in fall migration. Summer record: Taken July 26, 1902, at Swan Lake (Silloway, 1903b, p. 302). Migration records: Bridger Mountains, September 5, 1874 (Grinnell, 1876, p. 649); Madison River, September 23, 1888 (Richmond and Knowlton, 1894, p. 303); two taken at Fort Keogh in fall of 1889 (Thorne, 1895, p. 214); Dawson County, August, 1904 (Cameron, 1907, p. 267). I observed a bird that belonged to this species, but to which subspecies I could not be sure, at Flathead Lake in July, 1915, indicating that the species still breeds there.

124.

**Falco sparverius sparverius** Linnaeus

## EASTERN SPARROW HAWK

Birds referable to this form occur in eastern Montana (Mearns, 1893, pp. 252-270). A specimen from Miles City, taken by C. F. Hedges, September 24, 1900, is referred to this subspecies. It is no. 5389 coll. of L. B. Bishop. The validity of the western race of this species has been questioned, but until the question is settled both races must be listed from Montana.

125.

**Falco sparverius phalaena** (Lesson)

## DESERT SPARROW HAWK

An abundant summer resident practically throughout the state, occurring chiefly in the prairie regions and mountain valleys, but also found in the lower mountain canyons up to the lower Canadian zone. It is somewhat less common along the northern border of the state, just east of the continental divide. Except in this region, where the Marsh Hawk exceeds it in numbers, it may be said to be the commonest Montana hawk. All observers record this species from all parts of the state.

In spite of its abundance there are no definite dates of finding of nests on record. The bird nests very commonly, and young may be seen just out of the

nest in the latter part of July. I have seen young on the wing in Powell County, July 31, 1910; in Teton County, July 14, 1912; and near Belton, Glacier National Park, August 3, 1914.

Migration dates are rather variable from year to year. Cameron gives the end of March and middle of October as times of arrival and departure in Custer and Dawson counties (1907, p. 267). Other dates are as follows: Spring: Lombard, April 22, 1909; Big Hole River, April 27, 1910; French Gulch, Deer Lodge County, May 5, 1911; Teton County, May 19, 1912 (Saunders, 1914a, p. 132); Bitterroot Valley, February 28, 1910, March 27, 1911, April 18, 1912, and March 29, 1913 (Bailey, MS); Highwood, April 3, 1914 (DuBois, MS). Fall: Bozeman, October 6, 1908; Race Track, Deer Lodge County, September 25, 1910; Whitetail Park, Jefferson County, September 26, 1909; Teton County, September 28, 1911 (Saunders, 1914a, p. 132).

126. **Pandion haliaetus carolinensis** (Gmelin)

OSPREY

A regular and formerly common summer resident of the western half of the state, along streams and near lakes, occurring also along the larger rivers eastward. Most observers in the eastern half of the state do not list this species. It breeds regularly at Flathead Lake, and probably rarely all through the mountainous half of the state, as there are scattered summer records throughout this region. At Flathead Lake old nests testify to its former abundance, but now there are only a few pairs still breeding on some of the islands.

The only date for nesting is from Flathead Lake, a nest containing young, June 14, 1900, young still in this nest on August 6 (Silloway, 1901a, p. 30). Other localities for summer records are Gallatin County (Richmond and Knowlton, 1894, p. 303); Park County; Big Hole Basin (Forrest, 1914, p. 194); Bitterroot Valley (Bailey, MS); Belton, August 3, 1914. Records east of the mountains are from the Missouri River above Carroll (Grinnell, 1876, p. 650); between Billings and Miles City (Jones and Dawson, 1900, p. 32); Fergus County (Silloway, 1903a, p. 33).

Migration dates are as follows: Spring: Fridley, Park County, May 13, 1909; Big Hole River, May 1, 1910 (Saunders, 1912a, p. 25); Teton River, May 19, 1912 (Saunders, 1914a, p. 132); Bitterroot Valley, April 17, 1911 (Bailey, MS). Fall: Belton, October 2, 1915 (DuBois, MS).

127. **Asio wilsonianus** (Lesson)

LONG-EARED OWL

A regular permanent resident evidently throughout the state. Most of the nesting records are east of the mountains, but the bird evidently nests west of them also, and occurs at considerable elevation in the mountains. Winter records are all from eastern Montana, but it is not unlikely that the bird is resident wherever found.

Nesting records: Custer County, female found dead on six eggs, May 7, 1907 (Cameron, 1908a, p. 56); nesting at Bozeman (Saunders, 1911a, p. 37); Lewis-

town, June 2, 1900, 4 eggs, May 11, 1901, 3 eggs, May 10, 1902, 4 eggs, and May 13, 1903, 6 eggs (Silloway, 1903a, pp. 33-34); Stevensville, Ravalli County, April 14, 1912, 2 eggs (Bailey, MS); Collins, Teton County, May 18, 1917, 5 eggs (DuBois, MS).

Records in the mountains: Deer Lodge County, 7000 feet, August 27, 1909, and Homestake, Jefferson County, 5800 feet, June 25, 1910 (Saunders, 1912a, p. 25); Red Eagle Lake, Glacier National Park, August 9, 1914.

128.                    **Asio flammeus** (Pontoppidan)

SHORT-EARED OWL

A regular permanent resident throughout the state in the mountain valleys and on the prairies. Quite common in many places. Most observers record this species. It nests in most localities where it is found, but is not recorded nesting in the extreme eastern part of the state. Cameron reported it from that section as an erratic winter visitor, though other observers have found it there in summer.

Nesting records: Great Falls, June 13, 1889, 6 eggs, incubation advanced (Bendire, 1892, p. 334); Lewistown, June, 1907, 8 eggs (Silloway, 1909, pp. 89-90); Choteau, 9 young, June 10, 1912, and later (Saunders, 1913c, pp. 121-125); Bitterroot Valley, 6 eggs, April 14, 1912, and 3 eggs, April 3, 1913 (Bailey, MS). Also reported to nest in the Gallatin and Deer Lodge valleys (Saunders, 1911a, p. 37, and 1912a, p. 26).

129.                    **Strix varia varia** Barton

BARRED OWL

A rare permanent resident in the eastern part of the state. There are but three records, all east of the continental divide and in the southern half of the state. Yellowstone and Mussellshell rivers (Allen, 1874, p. 64); Gallatin County, one seen August 5, 1909 (Saunders, 1911a, p. 37); two taken at Billings (Thomas, MS).

130.                    **Scotiaptex nebulosa nebulosa** (J. R. Forster)

GREAT GRAY OWL

A winter visitor, mainly in the northwestern part of the state, but with one or two scattering records to indicate that it may occur rarely anywhere. Several mounted specimens are in the collection of H. P. Stanford, at Kalispell, taken in that vicinity (Saunders, 1915b, p. 115). A specimen from Columbia Falls, December 24, 1900, taken by E. S. Bryant, is in the collection of Dr. L. B. Bishop. Has been taken in the Bitterroot Valley nearly every winter, one on December 31, 1910, and another December 2, 1911 (Bailey, MS). One taken at Billings in the winter of 1917-18, and one seen on Buffalo-horn Creek in the West Gallatin country in November, 1916 (Thomas, MS).

131.                   ***Cryptoglaux funerea richardsoni*** (Bonaparte)

## RICHARDSON OWL

A specimen of this owl, taken at Columbia Falls December 9, 1902, by E. S. Bryant is in the collection of Dr. L. B. Bishop. This species is also reported common in winter in Glacier Park (F. M. Bailey, 1918, p. 57). It has not been reported from any other part of the state.

132.                   ***Cryptoglaux acadica acadica*** (Gmelin)

## SAW-WHET OWL

A rare resident, most common in the northwestern part of the state, but reported from scattered localities elsewhere. Records: Custer County, one young of the year, July 12, 1907 (Cameron, 1908a, pp. 55-56). One from the Yellowstone River at Miles City, February 21, 1900, taken by C. F. Hedges and in the collection of L. B. Bishop. Resident in the mountains, southwestern Montana (Saunders, 1912a, p. 26). Rare resident in the Bitterroot Valley and mountains (Bailey, MS). One seen at Bozeman, December 25, 1915 (Lundwall, 1916, p. 30). Occurs regularly at Kalispell in winter. One found dead January 21, 1916 (Sloanaker, MS).

133.                   ***Otus asio maxwelliae*** (Ridgway)

## ROCKY MOUNTAIN SCREECH OWL

A rare permanent resident in the eastern part of the state. Most of the records are from Custer County. Fort Custer, one taken December 1, 1884, and four others later that same winter (Bendire, 1892, p. 364). Three seen at Fort Keogh (Thorne, 1895, p. 214). Four, two young and two old, found on Horse Creek, Custer County, in July, 1897, and four on Sheep Creek, Custer County, in July, 1905 (Cameron, 1908a, p. 56). One seen at Lewistown. (Silloway, 1903a, p. 48). A screech owl heard on Bridger Creek, Gallatin County, by Thomas (Saunders, 1911a, p. 37), probably also belongs to this race. Occurs at Billings and nests there (Thomas, MS).

134.                   ***Otus asio macfarlanei*** (Brewster)

## MACFARLANE SCREECH OWL

A permanent resident in western Montana west of the continental divide. Eastern slopes of the Bitterroot Mountains (Bendire, 1892, p. 371). Hell Gate, Missoula County (Brewster, 1891, p. 141). Rare resident of the Bitterroot Valley and mountains (Bailey, MS). A screech owl was taken on Post Creek, Missoula County (Silloway, 1901a, p. 48). This last bird is recorded as *maxwelliae*, but the early specimens taken at the Biological Station at Flathead Lake have never been compared with those in other collections, and from the locality one would suspect this bird to belong to *macfarlanei*. Screech owls heard on the South Fork of the Flathead River, at Cabin Parks and Spotted Bear, in the summer of 1916 (Betts, 1916, p. 162), probably also belong to this race. There are no data on the nesting of this species in the state.

135.

**Bubo virginianus pallescens** Stone

## WESTERN HORNED OWL

A common permanent resident throughout the state, except perhaps the northwestern part, where it is probably replaced, in the mountains at least, by *saturatus*. This species ranges over prairies, valleys and mountains, but it is decidedly commoner in the prairies and valleys. It is becoming rare in the more thickly settled regions. Nearly all observers record it.

This species nests early in the year. Two sets, of three and four eggs, respectively, were taken at Lewistown, March 16, 1900 (Silloway, 1901d, pp. 97-98), and a second set of two eggs, on April 13, 1900 (Silloway, 1903a, pp. 34-35). Young on the wing were noted at Choteau in May, 1912 (Saunders, 1914a, p. 132).

136.

**Bubo virginianus subarcticus** Hoy

## ARCTIC HORNED OWL

A rare winter visitor throughout the state. Of twenty-eight birds from Fort Custer in the winter of 1884-85, two approached this form (Bendire, 1892, pp. 385 and 387). Thorne records this subspecies as common at Fort Keogh, adding the statement that some breed (1895, p. 214), which seems extremely doubtful. A specimen taken at Miles City, January 15, 1900 (Hedges, coll. Univ. Mont.). A very rare winter visitor in the Bitterroot Valley. Two at Corvallis in the winter of 1907-08 (Bailey, MS). This last is the only record from the western part of the state.

137.

**Bubo virginianus saturatus** Ridgway

## DUSKY HORNED OWL

Found regularly in the mountains about Kalispell, where it is a permanent resident. Mr. H. P. Stanford has mounted a number of specimens. It is probably the regular form in the northwestern part of the state, at least in the mountains, but data on which to determine this with certainty are lacking. Flathead Lake specimens are listed as *pallescens* (Silloway, 1901a, pp. 48-49), and the horned owl which is a common resident in the Bitterroot Valley (Bailey, MS) has not been identified as to subspecies.

138.

**Nyctea nyctea** (Linnaeus)

## SNOWY OWL

An erratic and usually rare winter visitor, occurring throughout the state. This species has been recorded by nearly all observers whose work covers periods in the winter. It is found chiefly in the valleys and on the prairies. Silloway states that it occurs from the first of November to early March (1903a, p. 35). The only other dates to indicate the time of its migrations are October 26, 1908, in Tom Minor Basin, Park County, and October 14, 1917, at Kalispell (Sloanaker, MS).

139. ***Surnia ulula caparoch* (Müller)**

## HAWK OWL

A winter visitor, mainly in the northwestern part of the state, with one known occurrence in summer. Records: Madison River, August 11, 1872 (Merriam, 1873, p. 696); Summit, Teton County, November 8, 1912, one seen (Saunders, 1914a, p. 133); Kalispell, not uncommon in winter, several mounted each year (Sloanaker, MS). One taken at Billings in the winter of 1916-17 (Thomas, MS).

140. ***Speotyto cunicularia hypogaea* (Bonaparte)**

## BURROWING OWL

A common permanent resident in the prairie region of the state, particularly in the southeastern part. Also found in the Bitterroot Valley, and may occur in other valleys within the mountains. Records are numerous in Custer County and vicinity, but less so northward and westward. The northernmost records are Frenchman's River, July 9, 1874, and Sweet Grass Hills, August 3, 1874 (Coues, 1874b, p. 619). The more western records in the prairie region are from Fort Benton, September 20, 1853 (Baird, 1858, p. 60), Fergus County (Silloway, 1903a, p. 35), and Billings (Thomas, MS). In the Bitterroot Valley a specimen was taken at Corvallis, April 15, 1911, and one was seen May 4, 1912 (Bailey, MS). At Billings it is believed to be summer resident only.

141. ***Glaucidium gnoma pinicola* Nelson**

## ROCKY MOUNTAIN PYGMY OWL

A permanent resident of the mountains in the western half of the state. There is one record in the eastern half, and the bird may occur rarely throughout the state. It probably occurs in all the mountain ranges, but it has not been reported from the more eastern ones. In most places it is reported as rare, but I believe that it is merely overlooked, and that on the whole it is the commonest owl in the mountains. The easternmost records of this owl are as follows: Tongue River, one bird, January 4, 1895 (Cameron, 1907, p. 269); Gold Run, April 14, 1882 (Williams, 1883, p. 59); Gallatin County (Saunders, 1911a, p. 37); and Teton, and Lewis and Clark counties (Saunders, 1914a, p. 133).

The only definite knowledge of the nesting of this species in the state is the record of a nest and newly hatched young found on Bridger Creek, Gallatin County, by Mr. Thomas in June, 1909 (Saunders, 1911a, p. 37).

142. ***Coccyzus erythrophthalmus* (Wilson)**

## BLACK-BILLED CUCKOO

A summer resident of eastern Montana. On the Upper Missouri as far as Wolf Point (Grinnell, 1876, p. 648). A cuckoo seen in the Yellowstone Valley was probably of this species (Allen, 1874, p. 63). Pryor's Fork of the Yellowstone, also breeding on Little Horn River and at Fort Custer, June 25, 1885 (Bendire, 1895, pp. 27 and 30). A rare summer resident of Custer and Dawson

counties, arriving at the end of May. A nest and six eggs found June 13, 1900 (Cameron, 1907, p. 269). Three specimens taken at Miles City, June 8, 1902, by C. F. Hedges, are in the collection of the University of Montana. Summer resident at Billings (Thomas, MS).

143.                   **Ceryle alcyon alcyon** (Linnaeus)

BELTED KINGFISHER

A very common summer resident throughout the state, along rivers and about the borders of lakes. All observers report this species from all parts of the state, though it is probably found in greater numbers in the western half, where streams containing fish are more abundant. The spring migration takes place in March or April, and the fall migration in October. Migration dates: Bozeman, April 6, 1909; Dewey, Silver Bow County, April 30, 1910; Anaconda, April 26, 1911; Choteau, April 9, 1912; Highwood, March 28, 1914 (DuBois, MS); Bozeman, October 6, 1908; Whitetail Park, Jefferson County, September 26, 1909; Two Medicine River, Teton County, September 27, 1912; Missoula, April 25 to November 14 (Kittredge, MS).

Nesting data are not numerous, though there is no doubt that the species nests abundantly within the state, mainly in June. A pair were nesting June 4, 1905, on the Powder River (Cameron, 1907, p. 270). This seems to be the only definite date of nesting on record.

This bird winters in small numbers in the western half of the state, and probably quite commonly on the west side of the divide. Winter records are as follows: Reported nearly every month of the year in Fergus County (Silloway, 1903a, p. 35); Three Forks, February 12, 1910 (Saunders, 1911a, p. 37); Bitterroot Valley, a few all winter (Bailey, MS); Big Fork, December 26, 1916 (Sloanaker, MS). Winters at Missoula (Kittredge, MS), and occasionally near Billings (Thomas, MS).

144.                   **Dryobates villosus villosus** (Linnaeus)

EASTERN Hairy WOODPECKER

A permanent resident of extreme eastern Montana, breeding in the pine hills. Custer and Dawson counties (Cameron, 1907, p. 270). Rare, Fort Keogh (Thorne, 1895, p. 214). Eastern Montana, winter of 1884-85 (Bendire, 1895, pp. 46 and 50).

145.                   **Dryobates villosus leucomelas** (Boddaert)

NORTHERN Hairy WOODPECKER

A rare winter visitor. Possibly breeds along the northern border of the state, where the common breeding form, *monticola*, shows signs of intergradation with this form. One taken on Big Horn River, April 19, 1885 (Bendire, 1895, p. 50). An intergrade with *monticola* from Summit, and a typical bird from the Big Snowy Mountains, dated August 25 (Anthony, 1896, pp. 31-34).

146. **Dryobates villosus monticola** Anthony

## ROCKY MOUNTAIN HAIRY WOODPECKER

A common permanent resident throughout the western half of the state in the mountains. Winters mainly in the valleys in cottonwood groves, but does not breed there. Intergrades with *leucomelas* along the northern border of the state. The eastern limits of its range are evidently the eastern foothills of the mountains. Just which form breeds in the more eastern mountain ranges is not definitely determined. In the mountains this bird has been recorded by all observers. It is common everywhere, and usually the commonest of the mountain woodpeckers. There are few published records of the nesting of this species in the state. Young, one week old, were found in the Belt Mountains, June 25 (Williams, 1882a, p. 62). I have found nests in June, and full grown young on the wing in August.

147. **Dryobates pubescens homorus** Cabanis and Heine

## BATCHELDER WOODPECKER

A rare permanent resident throughout, or nearly throughout the state, but probably replaced by *medianus* in the extreme eastern portions. The bird is recorded by nearly all observers, but most of them consider it rare. It is certainly much rarer in the mountainous part of the state than the hairy woodpecker. Dr. Merrill found this species nesting near Fort Shaw early in June, 1879, a set of four eggs being taken on June 12 (Bendire, 1895, pp. 60-61). This is evidently the only published record of the nesting of this species in the state. Writers in the eastern part of the state differ in statements as to which form of downy woodpecker is found there. Cameron lists *homorus* for Custer and Dawson counties (1907, p. 270), but Thorne lists *medianus* from the vicinity of Fort Keogh (1895, p. 214). McChesney (1879, p. 2390) and Bendire (1895, p. 60) record this form from Fort Custer. This species, like the hairy woodpecker, while a permanent resident in the state, is found in summer and probably breeds in the mountains or pine hills, and winters in the cottonwood groves in the valleys and prairies.

148. **Dryobates pubescens medianus** (Swainson)

## EASTERN DOWNY WOODPECKER

Permanent resident of extreme eastern Montana, intergrading westward with *homorus*. Irregular in Montana (Bendire, 1895, p. 55). Fort Keogh, common, breeds (Thorne, 1895, p. 214).

149. **Dryobates pubescens nelsoni** Oberholser

## NELSON DOWNY WOODPECKER

A rare winter visitor. One taken at Fort Custer, January 28, 1885 (Bendire, 1895, p. 56). This subspecies was not described at the time Bendire wrote, but his remarks and description of the specimen leave no doubt about its identity. It is probable that the subspecies occurs more commonly in winter than this

single record indicates. In nearly two years' observations in Teton County, I met with this species but once, January 5, 1913, and am inclined to think that the bird would have proved of this form had it been collected.

150.

**Picoides arcticus** (Swainson)

## ARCTIC THREE-TOED WOODPECKER

A regular permanent resident of the mountains in the western half of the state, evidently commoner in the northwestern part of the state than elsewhere. The species has not been recorded from the most eastern mountain ranges. Its easternmost records are Gallatin County (Richmond and Knowlton, 1894, p. 303) and Belt Mountains (Williams, 1882a, p. 62). This bird is not generally common. Williams calls it tolerably common at Columbia Falls (Bendire, 1895, p. 75), and rather common in the Belt Mountains, but other observers find the bird generally rare. In my own experience it is rare, for in six years' work in the mountains of Montana I have seen this species on only four occasions. It was found breeding in the Prickly Pear Canyon in northern Lewis and Clark County by Dr. Merrill (Bendire, 1895, p. 75). This species has been found twice in the prairie region in winter or migration, a specimen having been taken at Billings, in the winter of 1917-18 (Thomas, MS) and a male on Little Pumpkin Creek, Custer County, April 25, 1900 (Hedges, coll. Univ. Mont.)

151.

**Picoides americanus fasciatus** Baird

## ALASKA THREE-TOED WOODPECKER

A rather rare permanent resident of northwestern Montana, chiefly on the west side of the divide. It is probable that the birds of this species found on the east side of the divide in the mountain ranges of Teton and Lewis and Clark counties also belong to this form, though they have been previously listed as *dorsalis* (Saunders, 1914a, p. 133). Those from northwestern Montana have been previously listed as *americanus* (Bangs, 1899, pp. 130-140). This form intergrades with *dorsalis* southward. Birds with barred rather than continuously white backs have been found even in the southern part of the state, as in Gallatin County (Saunders, 1911a, p. 37) and Jefferson County (Saunders, 1912a, p. 26). These birds were recorded as *americanus* but are more probably *fasciatus*. There are no definite records of the nesting of this subspecies in Montana, although it undoubtedly does so regularly in the mountains.

152.

**Picoides americanus dorsalis** Baird

## ALPINE THREE-TOED WOODPECKER

A regular permanent resident of the mountains of southwestern Montana. In most places it is rather rare, though I found it almost common in the mountains of Gallatin County, and it is mentioned as common in the mountains of the Big Hole Basin (Forrest, 1914, p. 195). Gallatin County and the Belt Mountains (Williams, 1882a, p. 62) appear to be the easternmost points at which it has been found.

Birds of this species were found hollowing out a nest in Gallatin County in June, 1909 (Saunders, 1911a, p. 37), but this nest was deserted before any eggs were laid. There are no other records of the finding of the nest of this species in the state.

153.

***Sphyrapicus varius nuchalis* Baird**

**RED-NAPED SAPSUCKER**

A regular summer resident of the lower mountain slopes and foothills throughout the western half of the state, and eastward to the easternmost ranges. The easternmost records are Mussellshell River (Allen, 1874, p. 63), and Big Horn Mountains and Little Big Horn River (Merrill, 1881, pp. 206-207). Occurs in rather small numbers, but is widely distributed and not rare. There are few



Fig. 15. RED-NAPED SAPSUCKERS AT NEST-HOLE; MALE AT LEFT, FEMALE AT RIGHT. NEAR HOMESTAKE, JEFFERSON COUNTY; JUNE 21, 1910. THIS NEST IS IN A DEAD FIR; THE SPECIES MOST COMMONLY NESTS IN LIVE ASPENS.

dates to indicate the season of its migration. The earliest date of arrival at Missoula is April 18 (Kittredge, MS). The earliest date among my own records is Sedan, Gallatin County, May 20, 1909. The only fall date I have obtained is Kalispell, October 1, 1917 (Sloanaker, MS).

This species nests in June and July. Dr. Merrill found a nest on the Little Big Horn River in June, 1880, containing five eggs. Silloway secured six fresh eggs at Lewistown on June 7, 1904 (1904b, p. 149), and found birds feeding young at Flathead Lake, June 26, 1900 (1901a, p. 29). The nest and young were found in Gallatin County in July, 1909 (Saunders, 1911a, p. 37), and a nest probably containing eggs, in Jefferson County in late June, 1910 (Saunders, 1912a, p. 24). (See fig. 15.) A nest containing young was found at Belton, July 3, 1915 (DuBois, MS).

154.

***Sphyrapicus thyroideus* (Cassin)**

WILLIAMSON SAPSUCKER

A rare summer resident, mainly in the southwestern part of the state. Occurs mostly in the mountains in the Transition zone. There are only a few records, as follows: Gallatin Basin, August 28 to September 3, 1890, three young taken (Richmond and Knowlton, 1894, p. 303). Madison River, August 13, 1872 (Merriam, 1873, p. 694). Seen in numbers throughout the Big Horn Region and on the Yellowstone River; specimens collected August 20, 24 and 29, 1878 (McChesney, 1879, p. 2390). This record is unusual, because other observers have not mentioned this species in that region, and it is the only record out of the mountains, besides being the easternmost record for the state. Nesting on Bridger

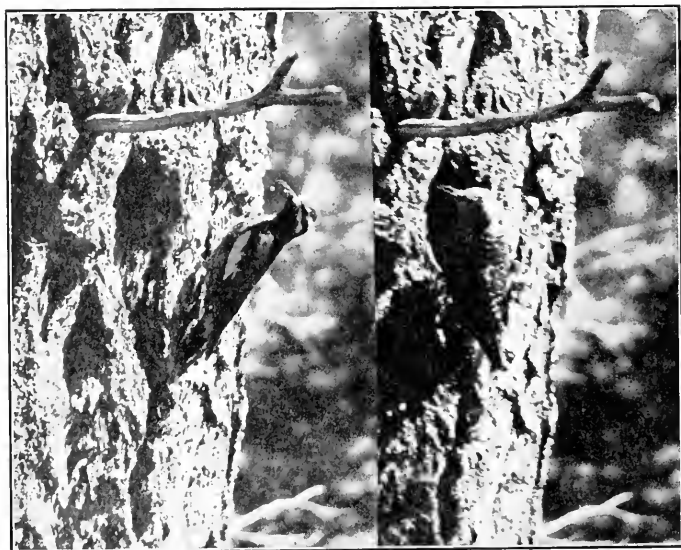


Fig. 16. WILLIAMSON SAPSUCKERS AT NEST-HOLE; MALE AT LEFT, FEMALE AT RIGHT. LITTLE PIPESTONE CREEK, JEFFERSON COUNTY; JULY 8, 1910.

Creek, Gallatin County in June, 1909 (Saunders, 1911a, p. 38). Divide Creek, Silver Bow County, April 23, 1910, several seen and one taken, and Charcoal Gulch, Silver Bow County, April 30, 1910, one seen (Saunders, 1912a, p. 26). A nest where the parents were feeding young found on Pipestone Creek, Jefferson County, July 6, 1910 (Saunders, 1910d, pp. 203-204). (See fig. 16.) The northernmost locality is Glacier Park, where there are a number of records at low elevations (F. M. Bailey, 1918, p. 58).

155.

***Phloeotomus pileatus abieticola* (Bangs)**

NORTHERN PILEATED WOODPECKER

A common permanent resident of the more heavily timbered mountains of northwestern Montana, west of the continental divide. There are also two records from extreme eastern Montana. The eastern limit of the regular range of

this species in the state is the upper limit of the Transition zone on the western slopes of the divide, for the birds are found only in the heavy timbered forests of Douglas fir and yellow pine of that zone. The southernmost records are in the Bitterroot Valley, where it is reported as rare (Bailey, MS), and about Gold Creek and Pioneer in Powell County (Saunders, 1912a, p. 26). The eastern records are of one seen April 25, 1894, and another August 12, 1898, in Custer and Dawson counties (Cameron, 1907, p. 270). While this species is found mainly in the mountains, it is reported to occur in the Bitterroot Valley in winter (Bailey, MS). There are no dates for the nesting of this species in the state,



Fig. 17. TRUNK OF A YELLOW PINE, SHOWING WORK OF THE PILEATED WOODPECKER. YELLOW BAY, FLATHEAD LAKE; SUMMER OF 1916. PHOTO BY J. L. SLOANAKER.

and occupied nests have not been found and recorded. I have seen the nest holes of this species at Flathead Lake high up in tall yellow pines.

It at first seems rather curious that the principal Montana habitat of this species, which ranges east to the Atlantic in other states, is almost exactly the same as the breeding ranges of certain other distinctly western species, such as the Townsend Warbler and the Chestnut-backed Chickadee. This is explained, however, by the preference of this woodpecker for forests of large evergreen trees, which grow only in the humid region of northwestern Montana, and are

lacking in the mountains of southwestern Montana or the pine hills of the eastern half. (See fig. 17.)

156. **Melanerpes erythrocephalus** (Linnaeus)

RED-HEADED WOODPECKER

A common summer resident of eastern Montana, ranging west to the foothills of the mountains, but becoming rare westward. Observers in the eastern part all record this species as common. West of the middle of the state, however, it becomes rare. The westernmost records are from the Belt Mountains, one seen (Williams, 1882a, p. 63); Gallatin County, near Bozeman, one taken, now in the collection of the Montana Agricultural College (Saunders, 1911a, p. 38); Choteau, July 16, 1911, one seen; and Strabane, Teton County, June 5, 1912, two seen (Saunders, 1914a, p. 133). Jones and Dawson (1900, p. 32) first noted this species between Billings and Miles City, when travelling eastward across the state.

This species is said to arrive in the middle of May and leave the middle of September (Cameron, 1907, p. 133). Nests have been found in Custer and Dawson counties, in June, but there seems to be nothing more definite than this about the nesting of this species in the state.

157. **Asyndesmus lewisi** Riley

LEWIS WOODPECKER

A common summer resident in the western half of the state. Breeds in the Transition zone, in cottonwood groves or yellow pines at low elevations. The easternmost records are Lewistown, May 18, 1899 (Silloway, 1903a, p. 36), Camp Baker, Meagher County (Grimmell, 1876, p. 648), Sun River (Cooper, 1869b, p. 298), base of Rocky Mountains along the northern border of the state (Cones, 1874b, p. 617), and Billings (Thomas, MS). At the last place it is reported rare, but it becomes more common westward in the pine hills about Big Timber, which evidently marks the most eastern point where the species occurs commonly in the southern part of the state. This species is not a bird of the mountains in Montana, as some writers would lead one to suppose. It occurs mainly in the foothills, in yellow pines and in cottonwood groves along stream borders.

Migration dates are as follows: Chestnut, Gallatin County, May 8, 1909; Big Hole River, May 1, 1910 (Saunders, 1912a, p. 26); Missoula, May 9 (Kittredge, MS). Fall dates are Gold Creek, September 21, 1910 (Saunders, 1912a, p. 26), and Missoula, September 17 (Kittredge, MS).

The only definite nesting dates would indicate rather late breeding on the part of this species. The birds were found feeding young in a nest at Flathead Lake, July 28, 1900 (Silloway, 1901a, pp. 52-53), and again near Garrison, Powell County, July 26, 1910 (Saunders, 1912a, p. 26).

158. **Colaptes auratus luteus** Bangs

NORTHERN FLICKER

A rare summer resident of eastern Montana, occurring west to the moun-

tains. Hybridizes with the next species so that birds are seldom typical. The following records of this species have been published: Seen west to the Musselshell (Allen, 1876, p. 62); occasional on the Little Horn River (McChesney, 1879, p. 2391); upper Missouri (Baird, 1858, p. 119); one taken August 23, 1874, at base of Rocky Mountains (Cones, 1874b, p. 618); Gallatin County, not common (Saunders, 1911a, p. 38); Divide Creek, Silver Bow County, April 17, 1910 (Saunders, 1912a, p. 26); common summer resident, nesting, Custer and Dawson counties (Cameron, 1907, p. 270).

159.

***Colaptes cafer collaris* Vigors**

## RED-SHAFTED FLICKER

A very common summer resident throughout the state. East of the continental divide the majority of birds are hybrids with the last mentioned species (*C. auratus luteus*), but most of such hybrids are nearer *collaris* than *luteus*. West of the divide the majority of birds are typical *collaris*. All observers record this species as very common, and it is on the whole the commonest and most widely distributed woodpecker in the state. It breeds mainly in the Transition zone, in the cottonwood groves of the prairies and valleys, in the pine hills of the eastern half of the state, and on the lower mountain slopes of the western half.

The migrations evidently take place in March or early April, and in November. It is difficult to determine dates exactly because a few individuals winter not uncommonly. Dates of arrival are: Bozeman, April 2, 1909; Silver Bow, March 29, 1910; Bozeman, March 19, 1911; Choteau, April 7, 1912; Lewistown, March 30, 1901 (Silloway, 1903a, p. 36); Highwood, April 7, 1914 (DuBois, MS). The only fall dates I have are from Bozeman, November 5, 1908, and Three Forks, October 17, 1909.

This species winters in small numbers in the western half of the state, and evidently quite regularly west of the divide. I have noted it in winter at Livingstone, Lombard, and Choteau. West of the divide it is reported as common in the Bitterroot Valley in winter (Bailey, MS), and it is reported from Missoula, December 25, 1915 (Kittredge, 1916, p. 39).

This bird nests very commonly, but, as is true with some other common species, dates of finding of nests or taking of eggs have not been put on record. Young were hatching on June 28 in the Belt Mountains (Williams, 1882a, p. 63). A nest containing nearly full-grown young was found at Flathead Lake in late July, 1915 (Saunders, 1916b, p. 82).

160.

***Phalaenoptilus nuttalli nuttalli* (Audubon)**

## POOR-WILL

A common summer resident of extreme eastern Montana, and occurring westward in the mountains, but much rarer there. One record west of the continental divide. Seen along the Musselshell (Allen, 1874, p. 62); Yellowstone River, August 8, 1856 (Baird, 1858, p. 150); Big Horn Mountains, heard (McChesney, 1879, pp. 2389-2390); Fergus County, in mountains to 7000 feet (Silloway, 1903a, p. 37); Custer and Dawson counties (Cameron, 1907, p. 389); Galla-

tin County, several on July 20-21, 1909, one secured July 21 (Samuels, 1911a, p. 38); Polson, one heard July 26, 1915 (Samuels, 1916c, p. 85); rare at Billings (Thomas, MS).

Cameron states that this species arrives in May and leaves in August. A specimen from Miles City, dated May 11, 1902, taken by C. F. Hedges, is in the collection of the University of Montana.

This species nests in June, a nest being found by Cameron, June 26, 1907, at Knowlton. He also states that the young fly by August 21. Silloway states that this species nests early in June in Fergus County.

161.

***Chordeiles virginianus hesperis* Grinnell**

## PACIFIC NIGHTHAWK

An abundant summer resident in the western half of the state, ranging east



Fig. 18. PACIFIC NIGHTHAWK INCUBATING HER EGGS. NEST ON A BED OF MOSS, NEAR BELTON. PHOTO BY A. D. DeBOIS.

to the western edge of the prairie region. Replaced by *scottii* eastward. The easternmost places where this form has been reported are Milk River, Sun River and Great Falls in the breeding season, and Johnson Lake, Valley County, in migration (Oberholser, 1914, p. 50). Reported common or abundant in all parts of the state except the Big Hole Basin, where it is rare, only one bird being seen in a season's work (Forrest, 1914, p. 195).

This species is one of the latest birds to arrive in spring, the date usually being in the first week of June. It leaves in late August or early September.

Spring: Sedan, Gallatin County, June 12, 1909; Homestake, Jefferson County, June 2, 1910; Bozeman, May 28, 1911; Choteau, June 7, 1912; Bitterroot Valley, June 11, 1910; May 31, 1911; June 4, 1912, and June 4, 1913 (Bailey, MS); Dutton, June 18, 1915, and June 19, 1916 (DuBois, MS); Missoula, May 29 (Kittredge, MS); Johnson Lake, Valley County, June 3, 1910 (Oberholser, 1914, p. 50). Fall: Bozeman, August 31, 1908; Jefferson River, August 25, 1909; Bozeman, September 5, 1910; Sun River, August 28, 1911; Choteau, August 29, 1912; Belton, September 3, 1915 (DuBois, MS); Missoula, September 15 (Kittredge, MS).

The nest of this species has been found very frequently, and there are many published records of taking of the eggs, or finding of young. These indicate that the birds begin nesting late in June, and continue until early in August. The earliest date of taking eggs is Flathead Lake, June 26, 1902 (Silloway, 1903b, p. 298); the latest, Polson, July 27, 1915. Newly hatched young have been found in Powell County as late as August 6, 1910 (Saunders, 1912a, p. 26).

## 162. *Chordeiles virginianus sennetti* Coues

### SENNETT NIGHTHAWK

A common summer resident of the eastern part of the state, in the prairie region, probably intergrading westward with *hesperis*. Probably occurs farther west in migrations. Records where this form has been definitely identified are as follows: Fort Custer, common (Mearns, 1904, p. 20); Fort Keogh, June 3, 1889; Darnell's Ranch, 30 miles south of Glasgow, Dawson County, July 8, 1910; Strater, Phillips County, July 16 and 18, 1910 (Oberholser, 1914, p. 56).

The migrations and nesting of this form take place at about the same time as those of *hesperis*. The earliest date for eggs is from Fort Benton, about June 25, 1860 (Cooper, 1869b, p. 297), and the latest date, August 13, 1860 (ibid., p. 298). It is interesting to note that among early records the eggs were taken on the Milk River, July 1, 1874 (Coues, 1874b, p. 613), and on the Upper Missouri the same day and year (Grinnell, 1876, p. 647). This form has been taken west of the continental divide in migration on Gold Creek, Powell County, August 26, 1910 (Saunders, 1912a, p. 27).

## 163. *Chaetura pelagica* (Linnaeus)

### CHIMNEY SWIFT

A rare summer resident of extreme eastern Montana. Seen at the mouth of Tongue River (Allen, 1874, p. 62). Merrill (1897, p. 355), discussing *C. vauxi*, says "I have frequently seen swifts on the Yellowstone River in Montana, but have been unable to secure any for identification". Four seen at Miles City, May 20, 1917 (Kittredge, MS). Two taken in Custer County, July 17 and 27, 1919, by C. F. Hedges.

## 164. *Chaetura vauxi* (J. K. Townsend)

### VAUX SWIFT

A rare summer resident of northwestern Montana, mainly west of the con-

tinental divide. There are only a few records. One taken at "Silver, Missoula County," June 25, 1891, by C. P. Streater (Bendire, 1895, p. 183). At present the only place in the state named Silver is in Lewis and Clark County, north of Helena. If this was formerly in Missoula County, and is the locality referred to, it is especially interesting because east of the divide. One seen at Yellow Bay, Flathead Lake, August 25, 1914. Swifts were also seen at Somers by H. P. Stanford (Saunders, 1915b, p. 114). I noted this species again, in the same place July 25, 1915. Other records are: Missoula, July 25, 1915, and Seeley Lake, August 20, 1915 (Kittredge, MS); South Fork of Flathead River (Betts, 1916, p. 162), identification questionable; Kalispell, May 30, 1916, and Wood's Bay, Flathead Lake, August 12, 1916 (Sloanaker, MS); seen at Many Glacier Hotel, Glacier Park, in midsummer (F. M. Bailey, 1918, p. 58).

165.

***Aeronautes melanoleucus* (Baird)**

## WHITE-THROATED SWIFT

A very rare or local summer resident, occurring in scattered localities over the state, though the majority of records are in the eastern half. Seen June 22, 1860, between Forts Union and Benton (Cooper, 1869b, p. 296); Belt River Canyon, feeding young in crevices of the rock in July, 1881 (Williams, 1882c, p. 122); seen by Bowman on the Powder River (Cameron, 1907, p. 390); Billings, August 12, 1900, and between Billings and Miles City, August 13, 1900 (Jones and Dawson, 1900, p. 32); six seen at Corvallis, Bitterroot Valley, May 19, 1911, two, May 27, 1911, and two, May 22, 1912 (Bailey, MS). At least twelve colonies of these birds nest in the vicinity of Billings, in rim-rocks. A set of two eggs was taken thirty miles below Billings on the Yellowstone, June 17, 1918. The set was evidently complete, as the two eggs had remained in the nest several days without an additional egg being added (Thomas, MS).

166.

***Archilochus alexandri* (Bourcier & Mulsant)**

## BLACK-CHINNED HUMMINGBIRD

A rare summer resident of extreme northwestern Montana, west of the continental divide. Taken at Columbia Falls, May 27, 1893, by Williams (Bendire, 1895, p. 199); two males seen at Stevensville, May 28, 1912 (Bailey, MS); seen at Yellow Bay, Flathead Lake (Silloway, from an unpublished manuscript); seen at Missoula, June 6 and July 17 (Kittredge, MS). These constitute the only records.

167.

***Selasphorus platycercus* (Swainson)**

## BROAD-TAILED HUMMINGBIRD

But two definite records of this species. One taken by Lieutenant Colonel Wirt Robinson in 1907 at Chico, Park County, according to information sent me by Mr. M. P. Skinner. One taken at Upper St. Mary's Lake, Glacier National Park in 1895 by Bailey and Howell (F. M. Bailey, 1918, p. 58). This bird, however, may be common in the southern part of the state. My record of the nesting of this species in Gallatin County must remain doubtful (1909b, p. 197, and

1910c, p. 204), but I am inclined to think the bird was correctly identified in the first place.

168.

**Selasphorus rufus** (Gmelin)

RUFOUS HUMMINGBIRD

A summer resident of the mountains of western Montana, most abundant in the northwestern part, and perhaps only a migrant in the southwest. There are no definite eastern records, though a hummingbird thought to be of this species was seen in the Big Horn Mountains (McChesney, 1879, p. 2390). The easternmost definite records of this species are all in the mountains of Teton and Lewis and Clark counties (Saunders, 1914a, p. 134). The Gallatin County record is in question (Saunders, 1909b, p. 197; 1910c, p. 204; 1911a, p. 38).



Fig. 19. FEMALE RUFOUS HUMMINGBIRD FEEDING YOUNG. NEAR BELTON; JULY, 1915. PHOTO BY A. D. DuBois.

The migrations take place in late May or June, and in September or the last of August. Dates of migration: German Gulch, Silver Bow County, May 30, 1910; Bernice, Jefferson County, June 6, 1911; Anaconda, September 11, 1909; Gold Creek, Powell County, August 24, 1910; seen at Belton, September 14, 1915, by Mr. Sutherland (DuBois, MS).

The nest has been found at Flathead Lake by Silloway. A nest containing newly hatched young was found at Belton, July 17, 1914, and a bird was observed feeding young, July 2, 1915 (DuBois, MS). A nest found in Gallatin

County, the identification of the parent being in question, contained eggs on June 28, 1909, and well-grown young, July 13 (Saunders, 1909b, p. 197).

169.

***Stellula calliope* (Gould)**

## CALLIOPE HUMMINGBIRD

A common summer resident of the lower mountains in the western half of the state. Rare in the eastern half. Abundant in the northwest, west of the divide. Nests mainly in the Transition zone of the foothills and lower mountain slopes. In eastern Montana this bird was seen by Bowman at Knowlton in September, 1889, and it was found nesting in Custer County by F. Z. Gray (Cameron, 1907, p. 390). All other records are in the western half of the state. The eastern limits of its common range are indicated by the following published notes: Teton County (Saunders, 1914a, p. 134); Gold Run, Cascade County (Williams, 1883, p. 59); and Cokedale, Park County (Saunders, 1911a, p. 38). Nearly all observers west of these points mention the species.

Migration takes place in May. Dates are: Gold Run, May 24, 1882 (Williams); Cokedale, May 29, 1909; and Birch Creek, Teton County, June 2, 1912. I can find no dates to indicate fall migration, the latest date, aside from the September record in eastern Montana, being Bear Creek, Gallatin County, August 12, 1890 (Richmond and Knowlton, 1894, p. 304).

The only nesting records are from Custer County, as given above, and from Flathead Lake. A nest was found at Yellow Bay, in the latter locality, in June and July, 1914 (Saunders, 1915b, p. 113), and another, probably of the same individual, in the same locality but somewhat higher from the ground, in 1915. A nest was found in this same locality in 1916 on a limb of a cedar. It contained eggs on June 18, 1916, and large young, July 10 (Sloanaker, MS).

170.

***Tyrannus tyrannus* (Linnaeus)**

## KINGBIRD

A common summer resident throughout the state. Found in the Transition and Upper Sonoran zones of the prairies and mountain valleys, nesting in bushes bordering streams and lakes or standing alone on the prairie, or in cottonwood groves. All observers record it and it is equally common at eastern and western extremes of the state.

In migration it arrives during the latter half of May and leaves in late August or September. At Terry, seven years give the average date of arrival as May 16, the earliest date, May 13, 1905; at Columbia Falls four years average is May 21, with the earliest May 15, 1896 (Cooke, 1908, p. 167). Other dates are: Bridger Creek, Gallatin County, May 19, 1909; Gregson, Deer Lodge County, May 30, 1910; Choteau, May 23, 1912; Bitterroot Valley, May 22, 1910, May 16, 1911, May 19, 1912, and May 18, 1913 (Bailey, MS); Dutton, May 28, 1915, and May 21, 1916 (DuBois, MS). Fall dates: Columbia Falls, September 11, 1895 (Cooke, 1908, p. 167); Bozeman, August 31, 1908; Jefferson River, August 25, 1909; and Choteau, August 22, 1911.

Nesting takes place mainly in June and July. In eastern Montana young

are on the wing at the end of July (Cameron, 1907, p. 390). At Flathead Lake young were found July 6 (Silloway, 1901a, p. 28). In Teton County eggs are laid about the middle of June, and the young leave the nests in the latter half of July (Saunders, 1914a, p. 134). Eggs were found at Dutton June 19, 1916 (DuBois, MS). There is probably only one brood in a year.

171. **Tyrannus verticalis** Say

ARKANSAS KINGBIRD

A common summer resident through most of the state, but rare in some localities. Breeds in the Transition and Upper Sonoran zones, and is most abundant in the lower valleys, being rather rare above 4500 feet in the southern part of the state, and above 4000 in the northern. On the whole, less common than *T. tyrannus*, but in some localities, that are probably Upper Sonoran, more common.

The migrations of this species take place in May and August, evidently a little earlier than those of *T. tyrannus*. At higher elevations, where this kingbird is rare, dates show that it arrives later instead. Eight years at Terry give an average of May 17, the earliest being May 8, 1894 (Cooke, 1908, p. 16). Other spring dates are: Gallatin Valley, May 26, 1909, and Choteau, May 28, 1912. West of the divide its migrations are considerably earlier, as shown from data from the Bitterroot Valley, where dates of arrival are May 6, 1910, April 29, 1911, May 8, 1912, and April 27, 1913 (Bailey, MS). Kalispell, May 6, 1913 (Sloanaker, MS).

This species nests commonly and there are many notes on the nesting, which evidently begins early in June. In eastern Montana young are on the wing by July 15 (Cameron, 1907, p. 391). Eggs were taken at the mouth of the Milk River, June 21, 22 and 28, 1874 (Cones, 1874b, p. 610). A set of three eggs was taken at St. Ignatius and the species noted nesting at Missoula (Silloway, 1901a, pp. 36 and 55). Birds were observed feeding young at Toston, Broadwater County, July 11, 1911 (Saunders, 1912f, p. 218). Half grown young in the nest were noted at Missoula, July 1 (Kittredge, MS). Birds were nest-building at Kalispell, July 1 (Sloanaker, MS).

172. **Sayornis sayus** (Bonaparte)

SAY PHOEBE

A common summer resident of eastern Montana, east of the mountains, occurring rarely in the mountain valleys, and at present unknown west of the continental divide. Breeds in the Transition zone on rocks in badlands or river canyons, or about the edges of prairie buttes, and about ranch buildings and under bridges. Most observers in the prairie region record this species, but the only record west of the mountains is Gallatin County, where two were taken (Richmond and Knowlton, 1894, p. 304).

Arrives in spring in April, early April in southeastern Montana, and later in the northwestern part of its range in the state. Five years at Terry show an average of April 9, with the earliest April 7, 1889 (Cooke, 1908, p. 212). Other

dates are Lewistown, April 12, 1901 (Silloway, 1903a, p. 38); Choteau, April 28, 1912 (Saunders, 1914a, p. 134); Dutton, April 18, 1915, April 22, 1916, and April 24, 1917 (DuBois, MS). I can find no dates of fall migration.

This species begins nesting in the latter part of May, and usually raises two broods in a season, the second brood, under normal conditions, starting early in July. Nests containing eggs were found at Crooked Falls of the Missouri, May 21, 1888, and June 3, 1889, by Williams (Bendire, 1895, p. 278). A nest containing young was found at Choteau, June 21, 1911, the young flying about July 4. The same nest the following year contained seven eggs of the first laying. Incubation began May 21, 1912, the eggs hatched June 4, and the young left the nest June 23. The second brood was started with three eggs by July 2 (Saunders, 1914a, p. 134). A nest with six eggs was found at Dutton, June 18, 1915, and a nest containing young, June 23, 1916 (DuBois, MS).

173.

**Nuttallornis borealis** (Swainson)

OLIVE-SIDED FLYCATCHER

A summer resident of the mountains in the western half of the state. Not common but widely distributed. Breeds mainly in the Canadian zone, preferring mountain slopes that are mainly open grass land with scattered clumps of Douglas fir, or land that has been denuded of all but a few clumps of trees by forest fires. While the bird is not common, the loud whistle of the male, coming from his perch in the dead top of a fir, carries for a long distance and proclaims his presence. The easternmost records of the species in summer are the mountains of Teton and Lewis and Clark counties (Saunders, 1914a, p. 134), the Belt Mountains (Williams, 1882a, p. 62), and Traill Creek, Park County (Richmond and Knowlton, 1894, p. 304). West of these points, most observers in the mountains record the presence of this species.

In migration this bird occurs rarely in the prairie region. It arrives in early June, and there are three records of its occurrence east of the mountains. These are Miles City, June 8, 1902, taken by C. F. Hedges and in the collection of the University of Montana; Miles City, August 19, 1919 (Hedges); and Choteau, May 26, 1912, one taken (Saunders, 1914a, p. 134). Migration records in the mountains are as follows: Columbia Falls, May 21, 1897 (Cooke, 1908, p. 258); Bridger Creek, Gallatin County, June 4, 1909; Bernice, Jefferson County, June 8, 1911; Belton, June 9, 1914 (DuBois, MS). German Gulch, Silver Bow County, May 31, 1910. Fall migration probably takes place in August or September. The only September date I have is from Mill Creek, Deer Lodge County, September 5, 1909.

There is no doubt that this species breeds in the mountains, but there are no published records of the finding of the nest or of the young.

174.

**Myiochanes richardsoni richardsoni** (Swainson)

WESTERN WOOD PEWEE

A common summer resident throughout the state in cottonwood groves or in the open yellow pine forests of the Transition zone. Recorded by all observers

throughout the state, nearly all agreeing that it is common or abundant in the proper localities. It is reported not common in the Bitterroot Valley, but common on the lower mountain slopes (Bailey, MS). I did not note it in Silver Bow County, probably because the elevations are too high there for it, but it is common in the lower valleys of the surrounding counties. Jefferson and Deer Lodge (Cameron records it as rare in Custer and Dawson counties (1907, p. 392), but Thorne states that it is common and breeds at Fort Keogh (1895, p. 215), and the latter statement is corroborated by a series of specimens from Miles City, including young of the year, taken by C. F. Hedges and in the collection of the University of Montana. Further than this, the March, April and early May dates given by Mr. Cameron for the occurrence of this species are so contrary to the experience of other observers, that it is evident that he mistook some other bird for this one, and overlooked the real Wood Pewee.

This bird is one of the latest of common breeding species to arrive. At Columbia Falls, five years give May 27 for an average, and May 20 (1897), for the earliest date (Cooke, 1908, p. 170). Other dates of arrival are: East Gallatin River, June 10, 1909; Bozeman, May 29, 1911; Choteau, June 6, 1912; Miles City, May 28, 1902 (Hedges); Bitterroot Valley, May 21, 1910, May 30, 1911, May 22, 1912, and June 1, 1913 (Bailey, MS). Fall dates are: Columbia Falls, September 9, 1895 (Cooke, 1908, p. 170); Bozeman, September 4, 1908, and September 5, 1910; Missoula, September 10 (Kittredge, MS).

This species probably nests commonly enough, but notes on the nesting are rare. A set of four eggs, advanced in incubation, was taken at Flathead Lake, July 8, 1902 (Silloway, 1903b, p. 297). I have seen nests of this species in late June or July both at Bozeman and Choteau, but not having determined whether they contained eggs or young, have not recorded the exact dates.

175.

### ***Empidonax difficilis difficilis* Baird**

#### WESTERN FLYCATCHER

A very rare summer resident, known only by a few records from the western half of the state. Evidently nests in the lower parts of the mountains. Found nesting in the Belt River Canyon, Cascade County, by R. S. Williams, and a set of eggs taken July 6, 1889 (Bendire, 1895, p. 299). On page 301 of this same publication a nest is mentioned from the same locality on July 6, 1891, perhaps two different nests, or possibly the same with a mistake in the date of one. Two of these birds were seen at Lake Como, Ravalli County, August 2, 1911 (Bailey, MS). The species has been seen at Gunsight and at Lake MacDonald in Glacier Park (F. M. Bailey, 1918, p. 59). I am quite certain that I saw it once on Wolf Creek, Lewis and Clark County, July 14, 1911. The records from Terry (Cooke, 1908, p. 77) are evidently errors. Cameron, who made the observations, records these dates for *E. trailli*, and does not list the present species at all in his Custer and Dawson counties list (1907, p. 392). Mr. Oberholser has written me recently that he believes this an error, due to recording species by check-list number only. It is therefore evident that the Western Flycatcher has not been found in the eastern part of the state.

176.

**Empidonax trailli trailli** (Audubon)

## TRAILL FLYCATCHER

A common summer resident of western Montana, west of the continental divide. Occurs more rarely on the east side of the divide, and intergrades with *alnorum* eastward. This species is common at Flathead Lake (Silloway, 1901a, p. 56), but not anywhere else in the state. It is not recorded from the Bitterroot Valley. It may be commoner than supposed, however, being a species that is easily overlooked. It has been recorded as a rare summer resident in the following localities: Gallatin County (Saunders, 1911a, p. 39); northern Lewis and Clark County (Saunders, 1914a, p. 134); Lewistown, one taken August 30, 1898 (Silloway, 1903a, p. 39).

The spring migration takes place in May, the fall movement is probably in August, for there seem to be no dates later than this. Dates of migration are as follows: Bracket Creek, Gallatin County, May 21, 1909, one bird taken which is an intergrade between this form and *alnorum*; Choteau, May 24, 1912. August dates are the one above at Lewistown, and one from Gold Creek, Powell County, August 27, 1910.

The nest has been found only at Flathead Lake, where the bird breeds very commonly in the thickets of alder, willow and thorn that line the edge of the lake and the banks of rivers and streams. A nest containing three young was found July 8, 1902 (Silloway, 1903b, p. 297). On July 27, 1915, I found two nests of this species at Polson, along the banks of the Pend Oreille River, near the outlet of Flathead Lake. The nests were in thorn bushes, and about twenty-five feet apart. Each nest contained five young ready to leave, in fact they left at my near approach.

177.

**Empidonax trailli alnorum** Brewster

## ALDER FLYCATCHER

Probably a rare summer resident of extreme eastern Montana, intergrading with *trailli* westward. This form is stated to breed in eastern Montana (American Ornithologists' Union, 1910, p. 216), and it probably does so, but I know of no definite published breeding record. Taken at Fort Keogh, June 8 (Thorne, 1895, p. 215); seen at Terry, May 18, 1894, and May 11 to 19, 1896 (Cameron, 1907, p. 392). An intergrade between this form and *trailli* was taken on Brackett Creek, Gallatin County, May 21, 1909 (Saunders, 1911a, p. 39). It is stated to be "pretty generally distributed . . . through . . . Montana" (Bendire, 1895, p. 305), but no specific Montana occurrence is cited.

178.

**Empidonax minimus** (W. M. & S. F. Baird)

## LEAST FLYCATCHER

A common summer resident in the eastern half of the state, evidently increasing in numbers, and slowly spreading its range westward. It has been found practically throughout the state, but is still rare west of the continental divide. All early writers report this species as rare, or not common, but the most recent observations show that in suitable localities it is now abundant. It breeds

in cottonwood groves of the Transition zone, and is not found in the mountains. In extreme eastern Montana it is reported as not common at Fort Keogh (Thorne, 1895, p. 392). This was in the period from 1888 to 1892. Two other records are cited for Custer County, May 25, 1893, and May 18, 1894 (Cameron, 1907, p. 392). In the University of Montana collection there are seven specimens, including young of the year, taken in 1900 and 1902 in the vicinity of Miles City by C. F. Hedges. In Gallatin County one was taken on Bear Creek as the result of two season's work, in 1888 (Richmond and Knowlton, 1894, p. 304), but in 1908 and 1909 the bird was found to be breeding regularly in the cottonwood lined streets of Bozeman (Saunders, 1911a, p. 39). The bird is now an abundant summer resident in Teton and Lewis and Clark counties (Saunders, 1914a, p. 134) and is also common at Livingstone, and along the Missouri River in Broadwater County. It has recently occurred west of the continental divide, where it may be expected to increase in numbers in the near future. These records are at Big Fork, Flathead Lake, June 30, 1914 (Saunders, 1915b, p. 111); a specimen taken at Big Fork in 1916 (Sloanaker, MS); at Missoula, where it was noted June 22, 1915, and later, and was evidently breeding on the University of Montana campus (Kittredge, MS).

The spring migrations take place the latter part of May. Dates are as follows: Huntley, May 13, 1886 (Cooke, 1908, p. 117); Custer County, May 25, 1893, and May 18, 1894 (Cameron, 1907, p. 392); Bozeman, May 27, 1909, May 28, 1911; Choteau, May 22, 1912; Miles City, May 4, 1902 (Hedges, in coll. Univ. Montana). Fall migration evidently takes place in August, at least there are no records later than that month. Occurrences at Bozeman, August 8, 1908, and August 2, 1909, and at Miles City, August 4, 1900 (Hedges, coll. Univ. Montana) comprise the only August records of which I know.

The nest of this species was first found in Montana on June 17, 1862, between Forts Union and Benton (Cooper, 1869b, p. 295), indicating that the species has bred in the state many years. Another nest is recorded from Fort Custer, June 25, 1885 (Bendire, 1895, p. 312). The bird nests in Teton County, where eggs are laid about the middle of June, and young fly in the latter half of July (Saunders, 1914a, p. 134).

179.

***Empidonax hammondi* (Xantus)**

## HAMMOND FLYCATCHER

A summer resident of the mountains in western Montana. Not common, and not reported from many localities. It is, however, probably distributed pretty well through all the mountain ranges. The species is easily overlooked and confused with the next, and unless an observer is familiar with it, and the difference between its notes and those of *wrighti*, its presence is not liable to be detected. The Hammond Flycatcher has been found in eastern Montana once, and evidently breeds there rarely, probably in the pine hills. The species was first found in the state August 20, 1874, in the Rocky Mountains along the northern border (Cones, 1874b, p. 612). It has also been recorded from Gallatin County (Richmond and Knowlton, 1894, p. 304); from Silver Bow and Jefferson coun-

ties (Saunders, 1912a, p. 27); from Teton County (Saunders, 1914a, p. 135); and from Flathead Lake (Saunders, 1916c, p. 85). In eastern Montana it was found at Fort Keogh, an adult being taken July 17 and a young bird June 8 (Thorne, 1895, p. 215).

This species nests in the Transition and Canadian zones of the mountains, being usually found at a little higher elevation than *wrighti*. The nest has been found in the mountains of Gallatin County, where four eggs, somewhat advanced in incubation, were secured July 2, 1909. Another nest was found at Flathead Lake, June 26, 1915. It contained eggs at that date, and young the second week in July, but how many was not ascertained (Saunders, 1916c, p. 85).

The only migration date I have for this species is from German Gulch, Silver Bow County, May 28, 1910. The latest dates of its occurrence on record are that of Cones, given above, and August 19-20, 1890, in Gallatin County (Richmond and Knowlton).

180.

### ***Empidonax wrighti* Baird**

#### WRIGHT FLYCATCHER

A common summer resident of the western half of the state. Found mainly in the Transition zone in the foothills and lower mountain slopes. The easternmost records are Teton and Lewis and Clark counties (Saunders, 1914a, p. 135), Gallatin County (Richmond and Knowlton, 1894, p. 304), and Park County, where it occurs in the foothills on the west side of the Yellowstone. It has been recorded by most observers in the western part of the state, but is not noted from the Bitterroot Valley, nor from the Big Hole Basin.

The nest has been found repeatedly at Flathead Lake. Four nests were found from June 15 to 25, 1900, containing from three to five eggs (Silloway, 1901a, p. 26, and 1901b, p. 6).

This species usually arrives in May, and indications are that its migration is considerably earlier on the west side of the divide than on the east. At Columbia Falls the average date is May 7, and the earliest April 24, 1895 (Cooke, 1908, p. 77). At Missoula, May 9 is given as the earliest date of arrival (Kittredge, MS). At Anaconda it was noted May 14, 1911. East of the divide dates are: Bozeman, May 27, 1909, and Choteau, May 22, 1912. The fall migration is evidently in August, August 20 being the latest date at Missoula (Kittredge, MS). Specimens were taken August 19-20, 1874, in the Rocky Mountains along the northern border of the state (Cones, 1874b, p. 612).

181.

### ***Otocoris alpestris arcticola* (Linnaeus)**

#### PALED HORNED LARK

A winter visitor throughout the state, probably quite common in most localities, but not always distinguished and separated from wintering examples of *leucolacca*. Apparently commoner in the mountain valleys of western Montana than on the prairies. In eastern Montana, *leucolacca* seems to be the prevailing winter form. At Fort Keogh, 118 specimens, taken in every month of the year, proved to belong to that race (Thorne, 1895, p. 215). Cameron does not list this race from Custer and Dawson counties, but there is a specimen taken at Miles

City, March 30, 1901, by Hedges (coll. Univ. Montana). I am certain that I have seen many birds of this race just over the Montana border in Harding County, South Dakota, and I believe that more extensive collecting in eastern Montana will show it to be not uncommon in hard winters.

In western Montana it is recorded from the Bitterroot Valley, Chief Mountain Lake, and the Sun River (Dwight, 1890, p. 143); from the Gallatin Valley (Richmond and Knowlton, 1894, p. 304; Saunders, 1911a, p. 39); from Deer Lodge and Jefferson counties (Saunders, 1912a, p. 27); from Teton County (Saunders, 1914a, p. 135); and from the Bitterroot Valley (Bailey, MS). I have also seen this form near Helena, and taken it near Livingstone, in Park County.

This subspecies evidently leaves in March, and arrives probably in December. Dates are: Livingstone, December 9, 1908; Helena, March 26, 1911; and Choteau, March 10, 1912.

182. **Otocoris alpestris leucolaema** (Cones)

DESERT HORNED LARK

An abundant summer resident throughout all of the state except the northwestern portion, where it is probably replaced by *merrilli*. All observers mention the occurrence of this species and most of them regard it as abundant. In the prairie region it is one of the commonest birds, breeding on the dry, short grass areas, such as occur on the higher benches. In such situations this bird is one of the very few species to be found. In the valleys of the mountainous half of the state, it is a little less common, mainly because the dry short grass areas it prefers are less common.

The migrations take place very early in the spring, in fact the Desert Horned Lark is the first common song bird to arrive, preceding the Robin and Mountain Bluebird by a week or more. Although a few individuals winter, it is easy to determine the beginning of the spring migration, because the birds always migrate in flocks, and are suddenly common the first day of their arrival. Dates of spring arrival are as follows: Gallatin County, March 9, 1909; Silver Bow County, March 3, 1910; Helena, March 12, 1911; Choteau, March 10, 1912, March 3, 1913. Fall migration is less easily determined, as it is difficult to separate late fall migrants from wintering birds. I believe that in western Montana at least fall migration does not entirely cease till nearly the first of January, as my observations have shown that this form of Horned Lark is more abundant late in December than in the other two winter months. I have no definite dates however. The majority of the summer birds are gone by the last of November.

Most writers are silent about the winter occurrence of this bird. In eastern Montana it is undoubtedly commoner in winter than *arctica*. In western Montana I do not think this the case. Too little winter collecting has been done to determine this with certainty, but the two forms are not difficult to determine in the field, when observed closely in a good light, for the throat of *leucolaema* is most intensely yellow at this season, while that of *arctica* is white, and since the birds flock together, the difference in size is usually apparent. My observations go to show that after the first of January flocks of horned larks are mainly *arctica* with only an occasional specimen of *leucolaema*.

Nests of this bird have been found very frequently and there is a large amount of data on the subject. These data go to show that there are normally two broods in a season, the first beginning in April or early May, and the second in June. The earliest nest of which I have record is one containing three eggs, April 16, 1915 (DuBois, MS). The latest date for eggs of what is evidently the first brood, is May 20, 1900, at Lewistown (Silloway, 1903a, p. 41). The earliest date for young on the wing is May 5, 1916, at Dutton (DuBois, MS). Second



Fig. 20. MALE DESERT HORNED LARK; DUTTON.  
PHOTO BY A. D. DuBois.

brood nests may be found with eggs in June and July. The earliest date for eggs is June 19, 1862 (Cooper, 1869b, p. 295), and the latest, July 18, 1874 (Cones, 1874b, p. 557). A second laying at Dutton had the last egg of three deposited July 8, 1916. The eggs hatched July 17 and 18, and the young left the nest July 28 (DuBois, MS). This gives a period of about twenty days from the laying of the last egg to the hatching of the young. It would seem, figuring at this rate, that there would be time for a brood to be reared between the middle

of May, when the first brood is on the wing, and the middle of June when the second begins. Very few nests, however, seem to be dated between the middle of May and the middle of June, which would indicate that the few found at that season are late stragglers of the first brood.



Fig. 21. FEMALE DESERT HORNED LARK ON HER NEST; DUTTON. PHOTO BY A. D. DuBois.

183.

**Otocoris alpestris merrilli** Dwight

DUSKY HORNED LARK

Summer resident of plains and open grass land in northwestern Montana. Breeds at Missoula and is a permanent resident there (Kittredge, MS). Listed by Sloanaker (MS) as the breeding form at Flathead Lake. Silloway (1901a, p. 56) considered the subspecies at that point to be *leucolacma*. *Leucolacma* is listed as breeding in the Bitterroot Valley also (Bailey, MS). *Leucolacma* does occur on the west side of the divide, and has been taken at Missoula, March 25, in a flock of *merrilli* (Kittredge, MS), but it seems quite probable that *merrilli* is the prevailing breeding form, though many of the birds in this region are probably intergrades. I secured a breeding bird at Silver Bow, just west of the divide, which proved to be *leucolacma*. This was to be expected, however, as the grass area where this bird was secured actually crossed the divide a few miles farther south, and the main part of it lay on the east side, forming the north slope of the Big Hole River. Intergrades between *merrilli* and *leucolacma* have been taken in the Gallatin Valley in fall migration (Richmond and Knowlton, 1894, p. 304).

There are no published accounts of the finding of nests of *merrilli* in Montana. Young were seen out of the nest June 6 at Missoula (Kittredge, MS).

184. **Otocoris alpestris hoyti** Bishop

## HOYT HORNED LARK

An adult female was taken at Miles City, November 9, 1919, by Hedges. Mr. Hedges wrote me that with binoculars he picked this dark-colored bird out of a flock of lighter colored ones, just at dusk. The specimen was sent to Dr. Bishop who wrote me that he considers it *hoyti* but approaching *arcticola*.

185. **Pica pica hudsonia** (Sabine)

## MAGPIE

An abundant permanent resident throughout the state. Breeds in the Transition zone, in cottonwood groves, willow and alder thickets, or in thorn bushes. Rarely breeds in evergreens in the foothills of the mountains, and not found in the mountains in the breeding season above the Transition zone. All observers mention the abundance of this species in every part of the state.

While the Magpie is a permanent resident, there is a movement of many birds up into the mountains in the fall. This occurs in October, with the first cold weather and snowstorms. At such times I have seen Magpies in the Hudsonian zone at elevations between eight and nine thousand feet. They evidently do not stay long as they are not seen at such places in winter.

Nesting begins in April. The birds have been seen nest-building on Highwood Creek, Choteau County, March 28, 1914 (DuBois, MS). The earliest eggs on record were found at Choteau, April 7, 1912 (Saunders, 1914a, p. 135). The majority of nests are finished and with incubation begun before the first day of May, but nests with fresh eggs may be occasionally found late in May. Such nests have been found at Dutton, May 21, 1916 (DuBois, MS) and at Choteau, May 26, 1912. The young are first seen out of the nest the last of May or early in June. There is evidently no second brood. The eggs usually number from six to ten, but one nest containing thirteen was found at Lewistown (Silloway, 1904b, p. 148).

186. **Cyanocitta stelleri annectens** (Baird)

## BLACK-HEADED JAY

A permanent resident of the mountains of western Montana, found mainly in the Canadian zone. This species has been recorded from all mountainous parts of the state where ornithological work has been done, except the Big Horn Mountains. It is never very common and is more or less local in distribution, being most often met with in the vicinity of saw-mills and lumber camps, where it feeds on garbage and scraps and becomes remarkably tame. The easternmost records of its occurrence are the Snowy Mountains (Silloway, 1903a, p. 42), and the Belt Mountains (Williams, 1882a, p. 61). I have seen this species in Park County, in Tom Minor Basin, and at other points on the west side of the Yellowstone, and I do not doubt its occurrence in the Absaroka and Crazy mountains farther east, though it is not as yet reported from those ranges.

While this species is not migratory, it is sometimes seen in the valleys at

points not far from the mountains, in spring and fall. Thus I have noted it at Bozeman, October 8, 1908, and in the Prickly Pear Valley, near Helena, March 19, 1911.

Only one finding of the nest is on record. Four eggs, advanced in incubation, were secured at Flathead Lake, June 28, 1901 (Silloway, 1901a, p. 57).

187. ***Perisoreus canadensis capitalis* Ridgway**

ROCKY MOUNTAIN JAY

A common permanent resident throughout the western half of the state, occurring in the mountains and mainly in the Canadian zone. Its range is almost exactly like that of the Black-headed Jay, it having been recorded from all mountain ranges where observations have been made except the Big Horn Mountains in the southeastern part of the state. The easternmost points where it has been recorded are Rocky Mountains, along the northern border (Cones, 1874b, p. 608); the Belt Mountains (Williams, 1882a, p. 62); Fergus County (Silloway, 1903a, p. 42); and Park County, where I have noted it on Traill Creek and in Tom Minor Basin. Its range extends a little higher into the mountains than that of the Black-headed Jay, it being sometimes seen in the Hudsonian zone, very likely breeding there. At certain times of the year it is much more abundant than the Black-headed Jay.

The movements of the Rocky Mountain Jay in the mountains, and its sudden changes from rarity to extreme abundance, are not yet satisfactorily explained. From late in February until early in August it is seldom seen, but from August to February it is very common, appearing about camps in considerable numbers, becoming exceedingly tame and sometimes troublesome. If one stops to eat a lunch in the forest, at any time in late summer or fall, the birds arrive silently, apparently from nowhere, and wait their opportunity to feast on the remnants. In 1910 I was in the mountains in camp from late February until October. After February 26 and until August 5 I have but twelve records of this species, nearly always but a single bird at a time. After August 5 and until October the species was seen almost daily, and usually in large numbers. Not one bird was seen in the month of March, when the species is supposed to nest. However, at that season it is almost impossible to get into the higher mountains, where the birds very likely breed. They are almost equally scarce in the month of July.

So far as I know, no record of the nesting of this species in Montana is known. It probably nests in the month of March or in early April. I secured a female in Gallatin County, February 26, 1909, which on dissection showed that the breeding season was approaching, but I know of no other evidence from Montana to show when the species breeds.

188. ***Corvus corax sinuatus* Wagler**

RAVEN

A permanent resident, occurring throughout the state, but rare or local in distribution. In the northwestern part it is fairly common in the mountains. In most other localities it is reported rare. In Custer and Dawson counties it is

reported a straggler and but two instances of its occurrence are given, November 21 and December 19, 1898 (Cameron, 1907, p. 393). On the Yellowstone and Mussellshell rivers it is reported as seen almost daily but not common (Allen, 1874, p. 61). At Fort Custer it is reported as common (Mearns, 1904, p. 21). It is reported common west of Carroll on the Upper Missouri (Grinnell, 1876, p. 647); not common at Fort Keogh (Thorne, 1895, p. 215); and as breeding at Fort Custer (McChesney, 1879, p. 2388). It is common about Billings, nesting on rim-rocks (Thomas, MS). These are all the records in the prairie region of the state. In the mountains the only records in the southern part of the state are from Park and Gallatin counties. Ravens were observed about Electric Peak in the northern end of Yellowstone Park, October 22, 1908, and in Tom Minor Basin and about Ramshorn Peak in the Gallatin Range, October 27 to 29, 1908 (Saunders, 1911a, p. 39). In northwestern Montana the species is fairly common, occurring regularly about Flathead Lake, and at Kalispell and Columbia Falls. It is also common in Glacier National Park, and occurs less commonly in the mountains of Teton County east of the divide. In Ravalli County it is reported as a rare breeder in the mountains, occurring in the valley in winter (Bailey, MS).

There are no published records of the nesting of this species in the state, though it undoubtedly does so. Two skins from Columbia Falls, in the collection of L. B. Bishop, are nearer to the race *sinuatus* than any other, though they are perhaps somewhat intermediate with *principalis*.

189.

**Corvus brachyrhynchos hesperis** Ridgway

## WESTERN CROW

A common summer resident throughout most of the state, though reported as not breeding in recent years in southeastern Montana. Occurs in small numbers in winter in the western half of the state. Breeds in the Transition zone, in cottonwood groves and willow thickets of the prairies and valleys, up to the foothills of the mountains.

The migrations take place in late March and October. In regions where the birds winter regularly it is difficult to determine exact dates. At Lewistown it was first observed April 7, 1900, and March 30, 1901, and in fall Crows were seen until October 12, 1899 (Silloway, 1903a, p. 43). Other records are: Bozeman, March 30, 1909, and October 18, 1908; Midvale (now Glacier Park), April 2, 1912; and Gregson, Silver Bow County, March 26, 1910.

This species winters in small numbers in many places. In the Gallatin Valley it winters regularly in the vicinity of certain slaughter houses where the refuse furnishes food. I have seen it in winter near Helena. It is also reported in winter at Fort Keogh (Thorne, 1895, p. 215), and in the Bitterroot Valley (Bailey, MS), and rarely in Teton County (Saunders, 1914a, p. 135).

This species nests in late April or May. There are few notes giving exact dates, but I have found nests containing fresh eggs in the latter part of April, and containing young in May and June. A nest with four young was found on the Teton River, June 4, 1916 (DuBois, MS). Nesting is evidently sometimes

prolonged into late June, but there appears to be no regular second brood. An example of a late nest is one containing five eggs on the Quaking Asp River, June 26, 1874 (Coues, 1874b, p. 606).

190.

***Nucifraga columbiana* (Wilson)**

## CLARK NUTCRACKER

An abundant permanent resident of the mountains throughout the western half of the state, ranging eastward to the easternmost mountain ranges. All observers in the mountainous parts of the state report this species as common. The normal eastward range is indicated by the following records: Belt Mountains (Williams, 1882a, p. 62); Camp Baker (Grinnell, 1876, p. 647); Big Horn Mountains (McChesney, 1879, p. 2389); and Fergus County (Silloway, 1903a, p. 43). An exceptional instance, indicating the rare occurrence of this species in the prairie region in winter, is afforded by Mr. C. F. Hedges, in the observation of several of the birds in Miles City during the winter of 1919-20 and the capture of one specimen January 4, 1920.

Unlike many permanent residents in the mountains, the Clark Nutcracker shows no regular movements up and down the mountain slopes according to season. It does move up and down more or less, but such movements are irregular and evidently governed more by the abundance of its food supply. It feeds largely in fall and winter on pine seeds, preferring those of the white-bark and limber pines (*Pinus albicaulis* and *P. flexilis*) but also eating those of yellow pine (*P. ponderosa*) when the others are not to be had. Since white-bark pine is a Hudsonian zone tree, yellow pine a Transition species, and limber pine ranging from Hudsonian down through Canadian and into Transition, the abundance of Nutcrackers at various elevations in fall and winter, varies with the abundance of the seeds of these various species.

Nesting begins very early, and the almost impenetrable condition of the mountains at this season has made the nest, in spite of the abundance of the bird, a rare find. Since at least some individuals breed in the Transition zone, the nest is by no means so hard to find as that of the Rocky Mountain Jay, which is probably always in Canadian or Hudsonian. Nutcrackers were noted gathering nesting material at Trego, February 26, 1916 (Kittredge, MS). A nest was discovered near Salesville, Gallatin County, in March (Pyfer, 1897, p. 100). A nest was found in Norton Gulch, Silver Bow County, March 14, 1910, when it was about completed. The first egg was laid March 18, and five eggs were laid altogether. The nest was robbed, probably by a squirrel, on March 23 (Saunders, 1910d, p. 195). Another nest, discovered in Charcoal Gulch, Silver Bow County, April 28, 1910, contained two fully fledged young (Saunders, l. c.). Young out of the nest have been noted May 9, 1903, in Fergus County (Silloway, 1903a, p. 43).

191.

***Cyanocephalus cyanocephalus* (Wied)**

## PINYON JAY

A common permanent resident of extreme southeastern Montana, nesting in

the pine hills. Occurs as a straggler farther west, but there are no records from the west side of the divide. A regular permanent resident in Custer and Dawson counties (Cameron, 1907, p. 394). This part of the state appears to be the only place where it is common. I have noted the Pinyon Jay in the Long Pine Hills of southeastern Carter County in November and December, 1909. Elsewhere in the state they have been found on the Marias River (Wied, 1841, p. 22), and in Gallatin County, where forty were observed at Bozeman, September 11, 1911 (Saunders, 1913a, p. 116), and where they have been seen several times in two different seasons (Lundwall, MS).

The nest has been found twice in Custer County. One was being built on May 19, and incubation was begun on five eggs on May 28. The young were hatched June 15 and destroyed by some enemy, the last young bird to remain being in the nest and fully fledged on July 2 (Cameron, 1907, p. 394). Other data show that perhaps the majority of birds breed much earlier than this. A colony of nine nests was found about fourteen miles north of Pompey's Pillar, Yellowstone County, on April 27, 1918. Five of the nests were in the same tree. All contained young fully fledged, looking as though all the nine nests had hatched their young on the same day (Thomas, MS).

192.

***Dolichonyx oryzivorus* (Linnaeus)**

## BOBOLINK

A common summer resident of all except extreme eastern Montana, breeding in the wet meadows and irrigated fields of the prairie region, and in the valleys of the mountain region. This species has not been reported from Custer and Dawson counties by any of the observers who have worked in that region. It has been found, however, east to the Big Horn River and Fort Custer (McChesney, 1879, p. 2388), and somewhere on the Yellowstone (Allen, 1874, p. 59). It has also been noted in Harding County, South Dakota, just east of the Montana border (Visher, 1911, p. 13). It may therefore occur locally in this intervening region and have been overlooked. In most parts of the state the Bobolink is increasing with the extension of irrigation. In the mountain valleys of western Montana it is locally very abundant, and has been recorded from practically all localities where ornithological work has been done except in the extreme southwest, where it has not been recorded from Jefferson, Deer Lodge or Silver Bow counties, nor from the Big Hole Basin. It is abundant, however, in parts of the Gallatin Valley, in the region about Three Forks, in the Missouri Valley in Broadwater County, and on the prairies just east of the mountains in Fergus County (Silloway, 1903a, p. 44), and Teton County (Saunders, 1914a, p. 135). It was first recorded in the Bitterroot Valley in 1860 (Cooper, 1882a, p. 78), and is now reported as a very common breeder there (Bailey, MS).

In migration this bird arrives in May and leaves in August. Dates of arrival are as follows: Bozeman, May 19, 1909; Choteau, May 25, 1912; Bozeman, May 28, 1913 (Lundwall, 1913b, p. 113); Bitterroot Valley, May 24, 1910, May 15, 1911, May 18, 1912, and May 15, 1913 (Bailey, MS); Missoula, May 27 to August 27 (Kittredge, MS). Fall dates appear to be scarce. I find in my

records, Shields River, Park County, August 8, 1908, and Teton County, August 13, 1911. Another August date on record is Chief Mountain Lake, August 26, 1874 (Cones, 1874b, p. 600).

The only nesting records in the state are from the vicinity of Lewistown, where a nest containing three eggs of the Bobolink and two of the Cowbird was found June 14, 1904, and other nests containing seven Bobolink eggs were found later (Silloway, 1904b, p. 150).

193.

***Molothrus ater ater* (Boddaert)**

COWBIRD

An abundant summer resident throughout most of the state, probably most numerous eastward, though it is decidedly common in the extreme western part also. Practically all observers report the species as common in prairie and valley regions. It is said to be rare at Flathead Lake, but should not be expected to be common on the heavily wooded shores there. In my experience it is common about Kalispell, north of the lake, and on the Flathead Reservation south of it. The Cowbird is found chiefly in open grass country, feeding in such places, and laying its eggs in the nests of species that nest there or in neighboring cottonwood groves, or clumps of bushes. In the evergreen forests of the mountains the Cowbird is absent, and the nests of small songbirds are free from its persecution.

The Cowbird arrives in spring in the early part of May, and probably leaves in September, though I can find little data to show just when it leaves in fall. Spring dates are as follows: Great Falls, May 9, 1887 (Williams, 1888a, p. 15); Bozeman, May 9, 1909; Silver Bow, May 20, 1910; Anaconda, May 12, 1911; Choteau, May 10, 1912; Bitterroot Valley, May 18, 1910, May 14, 1911, May 9, 1912, and May 7, 1913 (Bailey, MS). Fall migration dates are almost missing. The only date I can find among my own records is from Choteau, September 8, 1911, and I can find nothing whatever from other sources.

Although Cowbird eggs have been taken very frequently in the state, but few dates of their finding are published. Most of them are found in June or late May. I have found them in May in the nests of the Brewer Blackbird, in June in nests of various species, and in July in nests of the Cedar Waxwing and Black-headed Grosbeak. The latest found were laid July 8 and 9 in the nest of a Cedar Waxwing. The eggs are very commonly laid in the nest of the Brewer Blackbird, and record of this fact is made by most writers on the nesting of this species in Montana. It seems unusual, however, because the Blackbird is a larger species with a larger egg. Cowbird eggs have also been found in the nests of Western Vesper and Chipping sparrows, Arctic Towhee, and Long-tailed Chat (Cameron, 1907, p. 397); Bobolink (Silloway, 1904b, p. 150); Yellow Warbler, Black-headed Grosbeak, Slate-colored Fox Sparrow, and Cedar Waxwing (Saunders, 1911a, p. 40, and 1914a, p. 136); and Lazuli Bunting, Vesper Sparrow, Western Meadowlark, Western Yellowthroat, and Yellow Warbler (Bailey, MS).

194. **Xanthocephalus xanthocephalus** (Bonaparte)

## YELLOW-HEADED BLACKBIRD

A summer resident, scattered throughout most of the state, breeding locally, but more liable to be abundant in the migrations. Breeds in marshes of the Transition zone, not above 4500 feet elevation. It prefers marshes of tules, but sometimes also nests in cat-tails. The bird is reported as a migrant only in Fergus County (Silloway, 1903a, p. 45). It is reported to breed locally in Custer and Dawson counties (Cameron, 1907, p. 397); to breed at Swan Lake (Silloway, 1903b, p. 302); in the Jefferson and Deer Lodge valleys (Saunders, 1912a, p. 27); at Three Forks (Saunders, 1911a, p. 40); and in Teton and Lewis and Clark counties (Saunders, 1914a, p. 136). I have also noted it breeding at Somers, at the north end of Flathead Lake, and found one empty nest, but no birds, in rushes at Polson Swamp, near the southern end of the lake. In the Bitterroot Valley this species was reported as common in the fall of 1911, but not seen at any other time (Bailey, MS).

This species migrates in May and September. Dates are as follows: Fridley, Park County, May 13, 1909; Silver Bow, May 21, 1911; Choteau, May 7, 1912. At Dutton it was first observed May 18, 1916 (DuBois, MS). The only fall date that I have is from Choteau, September 8, 1911. In Custer and Dawson counties it is reported to leave at the end of September (Cameron, 1907, p. 397).

So far as I can find, dates for the breeding of this species in Montana are not on record. It appears to nest irregularly and locally, and I am of the opinion that it does not always return to the same spot each year. I found a nest with five eggs in a small rush slough on the Dearborn River, Lewis and Clark County, July 15, 1911. This is the only occupied nest of which I have any date, and it indicates rather late breeding. In Teton County I searched for nests several times in June and was unsuccessful.

195. **Agelaius phoeniceus fortis** Ridgway

## THICK-BILLED REDWING

A common summer resident throughout all parts of the state east of the continental divide. West of the divide this species is also common, but the subspecies has not been definitely determined. Probably it is not *fortis*. Breeds in the Transition zone, in cat-tail marshes or tules, appearing to have a preference for the former. The nature of the breeding habitat of this species makes its distribution at that season more or less local, but it is much commoner than the Yellow-headed Blackbird, and more certain to be found where marshes that suit it occur. It is reported commonly by observers from all parts of the state. It occurs rarely in winter in the western part.

The migrations take place in April and probably October, though definite fall dates are lacking. Arrivals are recorded as follows: Fergus County, April 9, 1900, and March 22, 1902 (Silloway, 1903a, p. 45); Bozeman, April 17, 1909; Helena, April 9, 1911; Choteau, April 15, 1912; Dutton, April 25, 1916 (DuBois, MS). In Montana I do not think that there is such a difference in the dates of

the arrivals of males and females as there is in the eastern United States. I have often noticed female birds the same date that I have seen the first males, or within a week of that time.

This species occasionally winters. Two were secured on the Shields River, December 9, 1908 (Saunders, 1911a, p. 40). Red-winged Blackbirds are reported to winter in small numbers in the Bitterroot Valley (Bailey, MS, and 1913a, p. 94), though the birds there may not belong to the subspecies *fortis*. A flock, mixed with Brewer Blackbirds, is reported from Billings in January, 1919 (Thomas, MS).

This species begins nesting in late May, and eggs may be found until nearly



Fig. 22. NEST AND EGGS OF THE THICK-BILLED RED-WING. CHOTEAU; JUNE 8, 1912.

the end of June. The earliest nest of which I have record was at Choteau, May 17, 1912. Young birds on the wing are common after the middle of June. Eggs and young have been found June 11, 1894, in eastern Montana (Cameron, 1907, p. 397).

196.

***Agelaius phoeniceus caurinus* Ridgway**

NORTHWESTERN REDWING

This subspecies is the one that I believe will be found to breed throughout northwestern Montana on the west side of the divide. An adult male secured at Silver Bow, May 21, 1911, and undoubtedly a breeding bird, is typical of this race (Saunders, 1912c, p. 107). I have examined specimens from Flathead Lake

in the University of Montana collection and believe that they all belong to this race, or at least to a race with a much longer, more slender bill than either *fortis* or *neutralis*. I had no specimens of *neutralis* at the time to compare them with, but there was more difference between them and *fortis* than between specimens of *fortis* and *neutralis* that I have since examined.

While the Silver Bow record is the only one that can at the present time be definitely ascribed to *caurinus*, I am considering that all records west of the divide belong to it. Assuming this, its migrations and nesting dates are earlier than those of *fortis*. At Missoula the earliest and latest dates are February 28 and November 28, respectively (Kittredge, MS). A nest containing newly hatched young and eggs was found at Silver Bow, May 21, 1911.



Fig. 23. NEST AND EGGS OF THE WESTERN MEADOWLARK. CHOCTEAU; JUNE 10, 1912.

197.

### ***Sturnella neglecta* Audubon**

#### WESTERN MEADOWLARK

An abundant summer resident on the prairies and in mountain valleys throughout Montana. Occurs in winter in the western half of the state, occurring in large numbers at this season west of the divide. The Meadowlark is one of the commonest birds in the state, and one of the best-known ones. It breeds commonly in open grass lands, particularly in irrigated hay fields and in the more moist meadows in the stream valleys. It is also common in the grass lands

of the foothills. It is common throughout the Transition zone, and is found in the Canadian, where areas suited to it occur in that zone. It is common in White-tail Park, Jefferson County, a large grass area within the Canadian zone, situated at an elevation of 7100 feet.

The migrations take place in late March or early April, and in October or November. West of the divide it is so common in winter that migration dates cannot be determined with certainty. In Custer County, eighteen years give an average arrival of March 30, with the earliest, March 20 (1907), while the average of fall dates is October 20 (Cameron, 1907, p. 399). Other dates are: Bozeman, March 19, 1909, and March 19, 1911; Helena, March 20, 1911; Choteau, April 4, 1912; Highwood, March 27, 1914; Dutton, April 11, 1915, March 17, 1916, and April 6, 1917 (DuBois, MS). Fall dates are: Bozeman, November 17, 1908; Three Forks, October 17, 1909; Dutton, October 11, 1916 (DuBois, MS).

The Western Meadowlark is a regular winter bird in the lower valleys west of the continental divide, such as the Bitterroot Valley and the valley of the Flathead River about Kalispell. East of the divide it occurs in winter in scattered localities and in small numbers. It is reported to winter in Custer County (Cameron, 1907, p. 400), in Gallatin County (Saunders, 1911a, p. 40), at Helena (Saunders, 1911b, p. 108), and at Billings (Thomas, MS).

Nesting begins the latter half of May, and eggs may be found from then until late June. Young are leaving the nests from the middle of June until early in August. Whether there are two broods or not is not apparent, as there seems to be no general break in the finding of eggs. The earliest nest on record is one from the Bitterroot Valley, May 12, 1911, and the latest record of nesting is that of young unable to fly, August 10, 1908, in the same locality (Bailey, MS). The latest eggs are June 28, 1874, on Poreupine Creek (Cones, 1874b, p. 603), but it is probable that eggs may be found much later than this.

198. ***Icterus galbula*** (Linnaeus)

BALTIMORE ORIOLE

A rare summer resident of extreme eastern Montana. Three specimens were taken by Dr. Hayden on the Yellowstone and at the mouth of the Powder River in 1856, one of which is dated August 4 (Baird, 1858, p. 549). Mr. Thomas wrote me that he saw a bird of this species at Glendive in August, 1909. These appear to be the only records.

199. ***Icterus bullocki*** (Swainson)

BULLOCK ORIOLE

A summer resident of the prairies and lower mountain valleys, breeding in cottonwood groves along streams, mainly in the Upper Sonoran zone. Common in eastern Montana, and becoming rare westward, but found throughout the state in suitable localities. Rare at elevations above 4000 feet in the northern part of the state, and above 4500 in the southern. Because of this, this species is not recorded from southwestern Montana west of Gallatin County, where the valleys are nearly all above 4500 feet. The only place where I have found it

common in the western half of the state is along the Missouri River in Broadwater County. It is extremely rare in the Gallatin Valley, and rare in Teton County. It is reported to be fairly common in the Bitterroot Valley (Bailey, MS) and about Polson (Silloway, 1901a, p. 59).

The migrations take place late in May and in August. May 20 is the average date in Custer County (Cameron, 1907, p. 400). Other dates are: Choteau, May 25, 1912 (Saunders, 1914a, p. 136), and Bitterroot Valley, May 27, 1910, May 11, 1911, May 17, 1912, and May 13, 1913 (Bailey, MS). The only August dates I can find on record are August 13, 1900, between Billings and Miles City (Jones and Dawson, 1900, p. 32), and as below.

In Custer County eggs may be found by June 15 (Cameron, 1907, p. 400). Birds were observed feeding young at Polson, August 12, 1916 (Sloanaker, MS). In regions where it is common, nests are conspicuous objects in the cottonwoods during the winter.

200. **Euphagus carolinus** (Müller)

RUSTY BLACKBIRD

A rare migrant in eastern Montana. One, killed by a Sharp-shinned Hawk, found April 26, 1903, in Custer County, and seven or eight others seen in the same locality the same day (Cameron, 1907, p. 400). Eight birds were shot at Miles City, October 7, 1919, by C. F. Hedges. Five skins were saved.

201. **Euphagus cyanocephalus** (Wagler)

BREWER BLACKBIRD

An abundant summer resident of the prairies and valleys throughout the state. All observers record this species, which is one of the most abundant and conspicuous birds. It breeds in the Transition zone, in thickets of willow, wild-rose, cinquefoil, and similar small bushes, the birds being seen most commonly feeding in open grass country. It winters occasionally in Custer County (Cameron, 1907, p. 400), and a flock, mixed with Red-wings, is reported from Billings in January, 1919 (Thomas, MS).

Arrives in spring in late April or early May, and leaves in fall in October. Dates are as follows: Great Falls, May 9, 1887 (Williams, 1888a, p. 15); Fergus County, April 29, 1899, April 23, 1900, April 27, 1901, April 28, 1902 (Silloway, 1903a, p. 47); Bozeman, May 2, 1909; Silver Bow, April 24, 1910; Stuart, Silver Bow County, April 16, 1911; Choteau, May 8, 1912; Bitterroot Valley, May 1, 1910, April 25, 1911, May 6, 1912, May 8, 1913 (Bailey, MS). Fall dates are less abundant: Custer County, October 6, 1898 (Cameron, 1907, p. 400); Tom Minor Basin, Park County, October 20, 1908; Anaconda, October 11, 1910, and Choteau, September 18, 1911.

Nesting takes place in late May and June, and there appears to be but one brood a year. The birds breed largely in colonies, and they are frequent victims of the Cowbird. The earliest indication of nesting of which I have record is a bird seen with nest material in her bill, May 15, 1912, at Choteau. The first nest was found half complete on May 16, 1912, the first egg was laid therein

May 20, and the set of six was completed May 25. Two other sets of six were found on this same date, and on May 27 a set of seven and one of eight were found. The latest nest of which I have record had the set of five eggs completed on June 6, 1912. These nests were all in the same colony. From other sources the earliest nest is May 31, 1902, at Polson (Silloway, 1903b, p. 297). I have found the nest in Gallatin County with four eggs, May 28, 1909. The latest record for eggs is June 28, 1905, in Custer County (Cameron, 1907, p. 400).

202.

***Quiscalus quiscula aeneus* Ridgway**

## BRONZED GRACKLE

A common summer resident of eastern Montana, ranging westward to the bases of the mountains. All observers in eastern Montana record this species as common or abundant, but westward it becomes rare. The westernmost records are from the Rocky Mountains, August 28, 1874 (Cones, 1874b, p. 606); Choteau, a pair taken May 25, 1912 (Saunders, 1914a, p. 136); Great Falls (Williams, 1888a, p. 15); and Bozeman and Belgrade, Gallatin County (Saunders, 1911a, p. 41).

The Bronzed Grackle is stated to arrive at the end of April in Custer County, April 25, 1895, and April 25, 1896, being given as dates of arrival (Cameron, 1907, p. 401). These are the only migration dates available at present for the spring, and there are none for the fall. I have noted the species in Great Falls, May 1, 1912, when several pairs were seen. These birds, however, may have arrived earlier than this date, as I was at Great Falls only for a few hours at the time.

Eggs have been found June 1, 1893, and June 3, 1894, in Custer County. Eggs were observed to hatch on June 11, and young noted on the wing by July 15 (Cameron, 1907, p. 401). Others have mentioned the nesting of this species, but there are no other definite dates.

203.

***Hesperiphona vespertina montana* Ridgway**

## WESTERN EVENING GROSBEEK

An erratic resident, found throughout the state at various seasons. Probably breeds in yellow pine forests in the mountains, and in the pine hills of the Transition zone. Most common in migrations, but found frequently in winter and sometimes in summer, when there are no indications that it breeds.

Summer records: Flathead Lake, common, probably breeding (Silloway, 1903a, p. 60). It still occurs regularly in the yellow pine woods at Flathead Lake every summer, but the nest has never been located. Fort Custer, flock seen July 24, 1889 (Mearns, 1904, p. 21). June 6, 1900, one male, Custer County, and August 23, 1904, one male, Dawson County (Cameron, 1907, p. 402). Bitterroot Valley, seen throughout the summer of 1908 (Bailey, MS). Belton, July 28, 1914, and July 22, 1915 (DuBois, MS). Willow Creek, Powell County, September 14, 1910 (Saunders, 1912a, p. 28). These are all the records that may indicate the breeding of this species. The nest has never been found in the state.

Winter records: Bozeman, January 2, 1911 (Saunders, 1913a, p. 116); Gallatin Valley, three seen January 1, 1917 (Lundwall, MS); Bitterroot Valley, common in winter (Bailey, MS); Helena, one, February 27, 1911; not common at Kalispell in winter (Sloanaker, MS).

Spring and fall records: In most localities the Western Evening Grosbeak is most commonly seen in spring and fall, occurring at those seasons in large flocks. Gallatin County, common from March 20 to April 9, 1909, and one male seen May 8, 1909; Helena, flocks abundant from March 10 to 28, 1911; Tongue River, three on April 26, 1891 (Thorne, 1895, p. 216); Bitterroot Valley, seen up to April 19, 1911, and common till June in 1908 (Bailey, MS). Fall: Bozeman, November 26, 1908, and October 16, 1910.

204.

***Pinicola enucleator montana* Ridgway**

ROCKY MOUNTAIN PINE GROSBEEK

A rare summer resident of the Hudsonian zone in high mountains probably throughout the western half of the state. Occurs frequently but erratically in migrations and in winter in the valleys and lower mountains of the western half of the state. In the summer time it is rare, and it occurs so high in the mountains that few observers get to see it. Records at this season are therefore few. It was first found near Mystic Lake, Gallatin County, and on Traill Creek, Park County (Richmond and Knowlton, 1894, p. 305), and from these birds the subspecies was first described (Ridgway, 1898, p. 319). I have met with this species in summer in the Hudsonian zone in Gallatin County, and in Teton and northern Lewis and Clark counties. One individual male was seen at Flathead Lake, June 27, 1914, in the Transition zone (Saunders, 1915b, p. 110). It has been noted in the Hudsonian zone near Missoula, July 31, 1915 (Kittredge, MS). These appear to be all the summer records. The nest has evidently never been found in the state.

In migrations and in the winter it is much more common and occurs in large flocks. In Gallatin and Park counties it is abundant in migrations. I noted large flocks on Reese Creek, Park County, October 22, 1908, and in Tom Minor Basin, October 29, 1908. In spring it was noted at Bozeman until April 6, 1909, and on Middle Creek in the lower mountains, until May 7, 1909. On the Sun River, Lewis and Clark County, I found it still in the Hudsonian zone on October 22, 1911. In southwestern Montana, where observations in the mountains for two seasons did not disclose its presence in summer, it appeared in large flocks in fall. The earliest flock was seen in the Hudsonian zone near Elk Park, September 8, 1910. This was immediately following the bad fire season of 1910, when two or three heavy snow storms had left about eight inches of snow on the ground. The large numbers of the birds so early in the season, considering that they had not been found in the region in summer, surprised me. They were also noted in this region, November 1, 1910, on Dry Cottonwood Creek, and on Divide Creek, April 26, 1910. In the Bitterroot Valley a bird of this subspecies was taken from a flock of six on October 5, 1910 (Bailey, MS). At Missoula, this species is found all winter and has been noted from December

3 to March 30 (Kittredge, MS). A bird taken there December 3 is reported as intermediate between *leucura* and *montana*.

In winter it is common in most of the mountain valleys. It is reported in winter from Gallatin County (Saunders, 1911a, p. 41); from Deer Lodge, Jefferson and Silver Bow counties (Saunders, 1912a, p. 28); from Missoula (Kittredge, MS); and from Helena, where it has been noted February 19 and 22, 1911. The birds from Gallatin County were originally reported as *alascensis* but later examination has shown that they are nearer to *montana*.

205.

***Pinicola enucleator alascensis* Ridgway**

ALASKA PINE GROSBEAK

This subspecies has been taken in the Bitterroot Valley in winter (Ridgway, 1898, p. 319) and it may occur elsewhere at that season. The majority of winter birds from Montana are not typical of any race, but are probably intergrades between *alascensis* and *montana*.

206.

***Carpodacus cassini* Baird**

CASSIN PURPLE FINCH

A summer resident of the western half of the state, mainly in the mountains. Fairly common in most regions, but usually more abundant in migrations than in the breeding season. In the latter season it is found up to the Hudsonian zone, and, locally at least, remains in the Transition, probably breeding. In my experience it is commoner in the Transition and Hudsonian zones than it is in the intervening Canadian. All observers in the western half of the state who have done any work in the mountains, report this species, so it is evidently universally distributed. The eastern limits of its range in the mountains are marked by Teton and Lewis and Clark counties (Saunders, 1914a, p. 136) and Park County, where I have observed the bird in Livingstone, and probably by the Belt Mountains, where two birds were seen and recorded as *C. purpureus* (Williams, 1882a, p. 62), the identification being evidently a mistake. The Cassin Purple Finch occurs throughout the breeding season, and undoubtedly breeds, in cottonwood trees in the following places in the valleys: Bozeman (Saunders, 1911a, p. 41), Bitterroot Valley (Bailey, MS), and Missoula and Kalispell (Kittredge, MS).

The migrations appear to be decidedly irregular. In valley locations the birds often occur in large flocks in the spring migration, when the numbers are so great that it is easy to mark both the beginning and the end of the flight. Dates for such migrations are: Gallatin County, May 5 to 19, 1909; Silver Bow County, April 22 to May 18, 1910; Anaconda, May 27 to June 10, 1911. At Columbia Falls it was first observed April 4, 1894, and April 5, 1897 (Cooke, 1914b, p. 106). In the Bitterroot Valley it was first seen April 7, 1912 (Bailey, MS).

The nest of this species has never been recorded from Montana. Young are full grown at Missoula by July 10 (Kittredge, MS).

207.

***Loxia curvirostra minor* (Brehm)**

## CROSSBILL

A summer resident of yellow pine forests in the Transition zone, wherever they occur in the state. In other parts of the state mainly an irregular migrant. Has been found more rarely in winter. The yellow pine forest, which appears to be the only place where this species breeds, occurs only at low elevations, below 4,500 feet in the southern part of the state and below 4,000 in the northern. Such forest forms the main body of timber in the pine hills of eastern Montana, and occurs in the lower foothills of the mountains of many parts of western Montana, so that the Crossbill's breeding range should include all such areas. It has been found in the breeding season in Custer County (Cameron, 1907, p. 402); along the Yellowstone and Musselshell (Allen, 1874, p. 55); at Flathead Lake (Silloway, 1901a, p. 61); in the vicinity of Gold Creek, Powell County (Saunders, 1912a, p. 28); at Florence, in the Bitterroot Valley (Bailey, MS); and at Lake MacDonald, Glacier National Park.

In migration this bird has been found at Lame Deer, May, 1891 (Thorne, 1895, p. 216); in Gallatin County, September 23 to October 24, 1908; at Elk Park, Silver Bow County, September 2 to 8, 1910 (Saunders, 1912a, p. 28); and at Gary, Flathead County, September 26, 1915 (DuBois, MS). In winter it has been noted at Lubee, Teton County, January 15, 1912 (Saunders, 1914a, p. 136); and at Corvallis in February, 1909 (Bailey, MS); and at Kalispell, February 3, 1917 (Sloanaker, MS).

The nest has evidently been found but once in the state, at Flathead Lake. This nest was being built on July 19, and, with its eggs, was collected on July 27, when incubation was partly advanced (Silloway, 1905b, p. 74). In Custer County young are stated to be out of the nest June 15 (Cameron, 1907, p. 402).

208.

***Loxia leucoptera* Gmelin**

## WHITE-WINGED CROSSBILL

A rare summer resident in the mountains of northwestern Montana, occurring very rarely elsewhere in the state in migrations or in winter. Summer records: One male seen at Swan Lake, and one female at Lake MacDonald (Silloway, 1905b, p. 176); two seen on the road between Belton and Lake MacDonald, Glacier National Park, July 4, 1915 (DuBois, MS). One male and two females seen on the South Fork of the Flathead River at Riverside, August 18, 1915 (Betts, 1916, p. 163). Records in migration: Big Sandy, April 22, 1905, and September 12, 1905 (Cooke, 1912, p. 46). Winter records: Occurs irregularly in winter in the mountains of Fergus County (Silloway, 1903a, p. 49); four birds, a male and three females, were taken at Miles City, November 16, 1919, by Hedges. These birds were in a draw among wild rose bushes and spanish bayonet, three-quarters of a mile from the nearest trees and twelve miles from the nearest pines.

209.

**Leucosticte tephrocotis tephrocotis** Swainson

## GRAY-CROWNED ROSY FINCH

An irregular, but sometimes very common winter visitor to the prairies in the eastern half of the state. An irregular migrant, occurring more rarely in winter, in the mountain valleys of the western half of the state. A summer resident of the Alpine zone in the high mountains of Glacier National Park, and perhaps elsewhere in northwestern Montana.

In summer this species occurs about the Blackfoot and Sperry glaciers, and probably in other similar localities in Glacier National Park. I noted a few in August, 1914, and found the birds common in August, 1915. I am informed that Mr. Silloway and Dr. Elrod found them at Sperry Glacier several years before this, but the fact has not been published. Probably the species breeds in these localities, placing its nest in crevices between the rocks of the glacial moraines, but the nest is yet to be found in the state.

In the western half of Montana it is often common in migrations, and sometimes occurs in winter. The fall migrant flocks are usually small ones, the birds evidently gathering in larger and larger groups through the winter, until in the spring the flocks number thousands. Fall migration begins in October, the first birds usually being seen in the mountains. Dates for the first appearance are: Lewistown, October 30, 1899 (Silloway, 1903a, p. 49); Ramshorn Peak, Gallatin Range, October 29, 1908; Anaconda, October 29, 1910; Big George Creek, Teton County, October 22, 1911; Belton, October 6, 1914 (DuBois, MS). The spring migration takes place in the mountains from March to May. I am of the opinion that the majority of the birds winter on the prairies in the eastern half of the state, and return to the western half by the middle of March. In the higher mountain valleys, where spring is late, and late spring snowstorms are liable to occur until almost the first of June, the flocks appear with every snowstorm, disappearing again as soon as good weather prevails. Thus I have seen large flocks late in May in the Gallatin Valley, and at Anaconda until May 27, when dissection of specimens secured showed that the time for breeding was not far distant.

Winter records in the western half of the state are as follows: Park County, February, 1909, flocks seen at a ranch for several days; Helena, flock seen February 25, 1911; Trego, flocks of 10 to 200 seen in the Canadian zone, February 11 to 26, 1916 (Kittredge, MS).

In the eastern half of the state this bird is usually a common winter visitor. In Custer and Dawson counties it is abundant, but none occurred in 1905-06. It arrives there October 25 and leaves March 15 (Cameron, 1907, p. 402). In Fergus County it is abundant from October to the middle of April (Silloway, 1903a, p. 49). It is also reported from Fort Keogh (Thorne, 1895, p. 216), and from Fort Custer (McChesney, 1879, p. 2386). Its migrations are as follows: At Big Sandy it arrived October 1, 1900, and October 3, 1906. At Terry, October 18, 1903, and November 1, 1904. It left Terry March 13, 1904, and was noted at Columbia Falls, April 6, 1893 (Cooke, 1913b, p. 364).

210.

**Leucosticte tephrocotis littoralis** Baird

## HEPBURN ROSY FINCH

An irregular winter visitor or migrant, occurring throughout the state, but chiefly in the eastern half in winter, and in migrations only, in the western half. This form occurs in company with the last mentioned, always in smaller numbers. Careful observations of flocks will usually disclose both forms, *littoralis* and *tephrocotis*, this being one of the few cases of subspecies that can be distinguished certainly in the field. In Custer County this form occurs in the proportion of one to twenty of *tephrocotis* (Thorne, 1895, p. 213, and Cameron, 1907, p. 403). Farther west it seems to be more numerous, the proportion being one to six or eight in Fergus County (Silloway, 1903a, p. 50). In the western half of the state *littoralis* has not been recorded in winter, but it probably occurs with the other. I do not remember ever having examined a winter flock closely enough to distinguish both forms. The Hepburn Rosy Finch appears early in spring, however, for it has been found in Silver Bow County, March 12, 1910, and in Gallatin County, March 19, 1911. In the spring of 1911 *littoralis* remained with flocks of *tephrocotis* in the vicinity of Anaconda till May 8, but in a flock of *tephrocotis* and *atrata* seen May 27, 1911, none of *littoralis* was found.

211.

**Leucosticte atrata** Ridgway

## BLACK ROSY FINCH

Rare in summer or migrations in southwestern Montana. Probably breeds in high mountain ranges of that part of the state. There are but three records for the state, and one of these is probably an error. On May 27, 1911, a large flock of Rosy Finches, about five thousand, was seen at Anaconda. About 10 per cent of the flock were of this species, the remainder being *tephrocotis*. An adult male in advanced breeding condition was secured (Saunders, 1912a, p. 28). An adult female, in worn breeding plumage, was taken on Rock Creek, above Lake Como, Ravalli County, August 2, 1911 (Bailey, MS). The third record is from Terry, November 1, 1903 (Cooke, 1913b, p. 365). The last record I question, because this species is not mentioned in Cameron's "Birds of Custer and Dawson counties", and because another similar error has evidently been made in the case of *Empidonax difficilis*. The occurrence of *Leucosticte atrata* in that part of the state would be decidedly unusual. I am informed by Mr. H. C. Oberholser that in transposing records, Prof. Cooke at one time designated species by check-list number and not by name, and an error might have arisen in that way.

212.

**Acanthis hornemanni exilipes** (Coues)

## HOARY REDPOLL

A very rare winter visitor in extreme eastern Montana. Two specimens have been taken at Miles City, on February 26, 1900, and March 12, 1900, respectively, by C. F. Hedges (Bishop, 1901, p. 195). One seen in Dawson County, March 9, 1905 (Cameron, 1907, p. 403).

213. ***Acanthis linaria linaria*** (Linnaeus)

## REDPOLL

An abundant but rather irregular winter visitor throughout the state. All observers who have extended their observations to the winter season, mention the occurrence and abundance of this species. It is found every winter, but there is some difference in its abundance from year to year, and considerable irregularity in the dates of appearance. It usually appears in October and remains till April, but in the mountains, or in valleys of high elevation in the western half of the state, it sometimes arrives in September and remains until May.

Dates of migration are as follows: Fall arrival, average of three years at Terry, October 29, earliest, October 23, 1903; Columbia Falls, average of four years, October 24, earliest, October 7, 1895 (Cooke, 1914b, p. 19); Bear Canyon, Gallatin County, September 11, 1908; Three Forks, October 17, 1909; Anaconda, October 12, 1910; and Big George Creek, Teton County, October 22, 1911; earliest arrival at Missoula, November 7; at Neihart, October 7, 1915 (Kittredge, MS). Spring departure, average at Terry, four years, April 14, latest April 17, 1896 (Cooke, l. c.); Bridger Canyon, Gallatin County, May 21, 1909; Anaconda, April 26, 1911; Choteau, April 23, 1912; Bitterroot Valley, March 26, 1912, and April 5, 1913 (Bailey, MS); Missoula, April 23 (Kittredge, MS); Dutton, May 18, 1917 (DuBois, MS). In the spring of 1910 this species evidently left very early. I was in the field constantly that year from February 24 till summer, but did not note the birds at all. This was in the mountains of Silver Bow and Jefferson counties. Redpolls had been present during the winter as I had noted them in January and earlier in February.

214. ***Acanthis linaria holboelli*** (Brehm)

## HOLBOELL REDPOLL

Two taken at Miles City, March 2, 1900, by C. F. Hedges (Bishop, 1901, p. 195). This form may be commoner than this one record indicates, but considerable collecting will be necessary to detect its presence.

215. ***Acanthis linaria rostrata*** (Coues)

## GREATER REDPOLL

Three taken at Miles City, March 1 and 6, 1900, by C. F. Hedges (Bishop, 1901, p. 195). The remark concerning the last mentioned species will apply here also. Mr. Silloway believes that he has seen all the four Montana forms of *Acanthis* at Lewistown (1903a, p. 51). He states that the subspecies *rostrata* is seen more commonly with rosy finches than with other redpolls. With the hope of finding it, I have collected several redpolls found in company with *Leucosticte*, but they have all proved the common form, *linaria*.

216. ***Astragalinus tristis tristis*** (Linnaeus)

## EASTERN GOLDFINCH

Summer resident of extreme eastern Montana, intergrading westward with

the western form. *A. t. tristis* is recorded as breeding in Custer and Dawson counties (Cameron, 1907, p. 404). Intergrades occur farther west, one having been taken at Three Forks, Gallatin County (Saunders, 1911a, p. 42). An adult female, from Custer County, July 6, 1919, belongs to this race, as identified by Dr. Bishop.

Migration dates of arrival at Terry average May 28 for six years, the earliest date being May 21, 1900 (Cooke, 1910b, p. 141). There is a winter record from Miles City, December 25, 1899 (Hedges, coll. Univ. Montana).

217. ***Astragalinus tristis pallidus* (Mearns)**

WESTERN GOLDFINCH

A common summer resident of western Montana, intergrading eastward with the eastern subspecies. Found practically throughout the western half of the state. Occurs rarely in various localities in winter. This form has not been recorded from Flathead Lake. I noticed its omission from Silloway's publications and made special search for it in two season's work there, but did not find it. This is only a local condition, however, for it is common enough at Missoula, and it occurs at Kalispell (Sloanaker, MS) and at Columbia Falls (Kittredge, MS).

The migrations of this species are decidedly irregular. At Big Sandy the average arrival is June 6, and the earliest, May 28, 1906. At Fort Custer it arrived May 3, 1885 (Cooke, 1910b, p. 141). Other dates are: Bozeman, May 2, 1909; Choteau, May 23, 1912; Bitterroot Valley, April 2, 1910, May 31, 1911, and June 4, 1912 (Bailey, MS). Fall records are: Big Sandy, October 16, 1906 (Cooke, 1910b, p. 141); Ginnabar Basin, Park County, October 25, 1908; Mill Creek, Deer Lodge County, September 15, 1909.

Winter records are as follows: Three Forks, a flock, February 12, 1910 (Saunders, 1911a, p. 42); Bozeman, flock of 100, December 24, 1914 (Lundwall 1915, p. 45); Missoula, December 25, 1915 (Kittredge, 1916, p. 30).

There can be no doubt that this species nests commonly in all parts of Montana where it occurs, but there are no records of its nesting that I can find. The birds probably nest rather late, as they do in other regions, for in my observations they are still in flocks late in June. They inhabit cottonwood groves, and undoubtedly nest mainly in the cottonwood trees.

218. ***Spinus pinus* (Wilson)**

PINE SISKIN

An abundant summer resident throughout the western half of the state, and found locally in the eastern half. Breeds most commonly in the Canadian zone of the mountains, but also in the Transition, and probably in the Transition pine hills in the eastern half of the state. All observers in the western half of the state mention the occurrence of this species. In the eastern half it seems to have escaped the notice of most observers, but it is recorded between Forts Union and Benton (Hayden, 1862, p. 165); in Custer and Dawson counties in July (Cameron, 1907, p. 404); and at Billings, August 12, 1900 (Jones and Dawson,

1900, p. 31). The occurrence of the Pine Siskin in summer in the eastern part of the state indicates that it breeds there, probably mainly in the pine hills. In western Montana it breeds both in evergreen forests and in cottonwood groves. In some localities it is found in the valleys, where not far distant from the mountains, such as the Gallatin Valley (Saunders, 1911a, p. 42), but it is abundant only in the mountains.

The migrations are somewhat irregular. Spring dates are as follows: Columbia Falls, April 10, 1894 (Cooke, 1910b, p. 140); Gallatin County, May 26, 1909; Divide Creek, Silver Bow County, April 23, 1910; Bozeman, May 27, 1911; Missoula, April 15 (Kittredge, MS). Fall dates are: Bozeman, September 13, 1908; Pipestone Basin, Jefferson County, September 24, 1909; Elk Park, Silver Bow County, September 8, 1910; Lube, Teton County, September 27, 1911, and Sun River, Lewis and Clark County, September 12, 1912. There is one winter record of this species in the state, at Bitterroot Valley, February 24, 1912 (Bailey, MS).

This species undoubtedly nests commonly, but there are few records of the finding of nests. One which I found on Middle Creek, Gallatin County, was half built on June 21, 1909, and the last of four eggs was laid June 26. This nest was situated in a cottonwood only a few feet from the ground, at the bottom of a mountain canyon. Another nest, containing young, was shown me by Mr. Thomas in Bozeman. It was built in a young planted Douglas fir, about five feet from the ground, and the four young left the nest on the evening of August 19, 1909. Young were noted on the wing at Belton, August 21, 1915 (DuBois, MS).

## 219. **Plectrophenax nivalis nivalis** (Linnaeus)

### SNOW BUNTING

A common but erratic and somewhat irregular winter visitor. Found in valleys and on prairies, mainly at low elevations, throughout the state, but records are most common from the prairies east of the divide. Through the prairie region of the state, all observers who have made observations in winter note its occurrence. In the mountain valleys it has been recorded in Gallatin Valley (Pyfer, 1898, p. 15), at Missoula, November 28, and at Trego, February 19 (Kittredge, MS).

Migrations are as follows: Northern Montana, average of six years arrival, October 31, earliest, October 26, 1895; average of six years departure, March 17, latest April 2, 1890 (Cooke, 1913, p. 17); Custer and Dawson counties, earliest, November 18, and latest, March 16 (Cameron, 1907, p. 405); Fort Keogh, arrives November 14, and leaves March 17 (Thorne, 1895, p. 216).

## 220. **Calcarius lapponicus alascensis** Ridgway

### ALASKA LONGSPUR

An erratic winter visitor, chiefly in the eastern half of the state, on the prairies, but occurring in the mountain valleys in migrations. Most of the records are given as *lapponicus*, but the only specimens that have been carefully

determined, those taken by Hedges in Custer County, have proven to be *alas-censis*. Records of this species west of the prairie region are as follows: Gallatin County, March 30, April 1 and 17, 1909 (Saunders, 1911a, p. 42); Race Track, Deer Lodge County, October 30, 1910, and Anaconda, April 30, 1911 (Saunders, 1912a, p. 28).

Fall and winter occurrences are as follows: Custer and Dawson counties, of erratic appearance in severe winters (Cameron, 1907, p. 405); Fergus County, common in winter (Silloway, 1903a, p. 52); Fort Custer, April 4, 1885, and Great Falls, September 13, 1889 (Cooke, 1910b, p. 241); Miles City, series of twelve specimens in the University of Montana collection, taken by C. F. Hedges, from September 20 to 27, 1900, and March 17, 1902; one in collection of L. B. Bishop, taken September 24, 1900; Teton and Lewis and Clark counties, common in winter and migrations, arriving October 31, 1912 (Saunders, 1914a, p. 137). In the winter months these birds are generally found in company with Horned Larks and Snow Buntings.

221.

**Calcarius ornatus** (J. K. Townsend)

## CHESTNUT-COLLARED LONGSPUR

A common summer resident of the prairie region of the state, west to the bases of the easternmost mountain ranges, but unknown west of those mountains, even on the east side of the continental divide. All observers in the prairie region mention the occurrence of this species. Its western limits are marked by a line which crosses the state from northwest to southeast, beginning at the eastern base of the mountains on the Blackfoot Reservation in Teton County, and probably ending in Stillwater and Carbon counties. The line at the north extends south to northern Lewis and Clark County, covering the drainage of the Sun River, then turns east along the divide between the Sun and Dearborn rivers, rounds the north end of the Belt Mountains about at Great Falls, and continues south in Fergus County on the east side of the mountains. Farther south than this it cannot be traced definitely, because of lack of field work, but the westernmost breeding area known is in the Lake Basin near Billings (Thomas, MS). This species is common, but somewhat locally distributed, being found in areas of rather long grass bordering marshy ground, or in wet hollows where the soil is alkaline.

The migrations take place in April and September. The average arrival at Terry, from three years' observations, is May 2, the earliest April 26, 1908; at Big Sandy the average of two years is May 3, with April 21, 1904, the earliest (Cooke, 1910b, p. 240). Specimens in the University of Montana collection, taken at Miles City by C. F. Hedges, are dated April 20, 1900, and April 28, 1901. At Dutton dates of its arrival are April 14, 1915, April 13, 1916, and April 20, 1917 (DuBois, MS). Fall dates are: Terry, September 23, 1903 (Cooke, 1910b, p. 241) and Miles City, September 27, 1900 (Hedges, coll. Univ. Montana). The nest has been found quite frequently. Nesting begins in May and continues, either as a second brood or as delayed nestings, till July. At Dutton the earliest nest with eggs was found May 8, 1915, and the latest, July

10, 1916, with numerous nests found at intervening dates (DuBois, MS). These are the earliest and latest dates available from any locality in the state. Another July date is that of six eggs found at Milk River, July 6, 1874 (Cones, 1874b, p. 582).



Fig. 24. CHESTNUT-COLLARED LONGSPUR WITH FOOD FOR YOUNG; DUTTON. PHOTO BY A. D. DuBois.

222.

### ***Rhynchophanes mccowni* (Lawrence)**

#### **McCOWN LONGSPUR**

An abundant summer resident of the eastern half of the state in the prairie region. The area where it nests is almost coincident with that of the Chestnut-collared Longspur, but it has been found also in one locality in the mountain valleys, west of the first ranges. This locality is in Broadwater County, about two miles west of the Missouri River and about fifteen miles south of Radersburg. At this locality there is a comparatively small area where the conditions are exactly those of the prairie benches in the prairie region, and there the McCown Longspur is a common breeding bird (Saunders, 1912f, p. 217). It is quite possible that similar areas may be found in other places, probably in Jefferson, Madison and Beaverhead counties. Through the prairie region this species is more abundant and more widely distributed than *Calcarius ornatus*. This

bird prefers the high, dry prairie benches, areas that extend for many square miles through the prairie region, and where the only other bird to be found is the Desert Horned Lark. In such places the grass is shorter than in places inhabited by *C. ornatus*. Areas do occur, however, where the two species of summer longspurs may be found together.

Migrations take place in April and September. At Terry the average date of arrival for nine years is April 26, and the earliest April 22, 1894. At Big Sandy, four years give an average of May 2, with April 28, 1904, for the earliest (Cooke, 1911, p. 16). Other dates are: Choteau, April 16, 1912 (Saunders, 1914a, p. 137); Dutton, April 18, 1915, April 14, 1916, and April 13, 1917



Fig. 25. NEST AND EGGS OF THE McCOWN LONG-SPUR. CHOTEAU; JULY 6, 1912.

(DuBois, MS). Fall dates are few. The only observation that I, personally, have made is from Choteau, October 16, 1911. Others are: Miles City, September 27, 1900 (Hedges, coll. Univ. Montana) and October 19, 1919 (Hedges).

Nesting begins in May and lasts until July; the birds evidently usually having two broods. The earliest date for eggs from any point in the state is from Dutton, May 9, 1915 (DuBois, MS). There are numerous records for nests in late May and early June, and also a good many for eggs early in July. The latest is from Dutton, July 28, 1916, four eggs (DuBois, MS). The earliest date for young is from Choteau, May 23, 1912, when the young were already half-grown.

223.

**Poocetes gramineus confinis** Baird

## WESTERN VESPER SPARROW

An abundant summer resident throughout the state. Found in grass meadows of the prairie region and in the mountain valleys, and on grassy slopes about the foothills of the mountains throughout the Upper Sonoran and Transition zones. All observers report this species as common or abundant.

The migrations occur in late April or early May, and in September or October. The average date of arrival in three years at Terry is April 28, with the earliest April 27, 1896. Three years average at Great Falls, April 29, earliest April 27, 1889. At Columbia Falls, three years' average May 6, with the earliest April 26, 1894 (Cooke, 1911, p. 87). Other dates are: Gallatin Valley, April 30, 1909; Divide Creek, Silver Bow County, April 27, 1910; Anaconda, April 20, 1911; Choteau, April 28, 1912; Lewistown, May 1, 1900, and April 25, 1901 (Silloway, 1903a, p. 54); Bitterroot Valley, April 29, 1911, May 3, 1912, April 13, 1913 (Bailey, MS); Dutton, May 1, 1915, May 4, 1916, and May 9, 1917 (DuBois, MS); Missoula, April 21 (Kittredge, MS). Fall departure dates are: Big Sandy, October 30, 1906 (Cooke, 1911, p. 87); Bozeman, September 28, 1908; White-tail Park, Jefferson County, September 26, 1909; Gold Creek, Powell County, September 21, 1910; Collins, Teton County, September 18, 1911; Missoula, September 24 (Kittredge, MS).

One occurrence of this species in the state in winter is recorded: Missoula, December 25, 1915 (Kittredge, 1916, p. 30).

The Western Vesper Sparrow nests late in May or early in June, probably a little earlier on the west side of the divide. The earliest date for eggs is from Flathead Lake, May 30, 1902; another nest in this locality had newly-hatched young on June 2 (Silloway, 1903b, p. 296). East of the divide the earliest nest is Lewistown, June 4, 1900 (Silloway, 1903a, p. 54). There are evidently two broods, the latest nest recorded being in Gallatin County, near Manhattan, with fresh eggs August 16, 1918 (Thomas, MS).

224.

**Passerculus sandwichensis alaudinus** Bonaparte

## WESTERN SAVANNAH SPARROW

A common summer resident of the northwestern part of the state, west of the continental divide. Up to a few years ago this form was listed as occurring throughout the state, but the evidence now goes to show that the form breeding on the east side of the divide is *nevadensis*, and that *alaudinus* is confined to the west side. Too little collecting has been done to make any certain statements about either form. There are birds from various parts of the state that are not typical of either subspecies. Specimens from Flathead Lake are more nearly *alaudinus* than any other form, but not perfectly typical. This species breeds throughout the Transition zone in wet meadows, where it is generally common, though often overlooked by observers. It is reported from the Bitterroot Valley (Bailey, MS), from Missoula (Kittredge, MS) and from Flathead Lake (Saunders, 1916c, p. 86).

Migration dates are: Columbia Falls, average of two years, May 2, earliest

April 30, 1894 (Cooke, 1911, p. 145), and Missoula, arrival April 30, departure September 24 (Kittredge). There is no doubt that this form breeds in Montana, young of the year having been taken at Flathead Lake, but there is no record of the finding of the nest.

225. ***Passerculus sandwichensis nevadensis*** Grinnell

NEVADA SAVANNAH SPARROW

A common summer resident of wet meadows east of the continental divide. Breeds throughout the Transition zone and probably also in the Upper Sonoran. Most observers mention this species, but some have evidently overlooked it. It is found both on the prairies and in mountain valleys, and is particularly abundant in valleys where irrigation has gone on for some time and where areas of wet grasslands are common. The identification of races is not well worked out at present. I am assuming that all birds east of the continental divide are *nevadensis*, and all birds west of it *auduboni*. A breeding bird from the Gallatin Valley has proven to be *nevadensis*, but birds from Teton County are doubtful, one being thought to be *savanna*. There is a considerable series of specimens from Miles City, taken by C. F. Hedges, in the University of Montana collection, which have recently been identified as *nevadensis* by Dr. Bishop. Two of these birds, however, are nearer *auduboni*.

Migrations take place in April or May, and probably in September. Dates are as follows: Traill Creek, Park County, May 14, 1909; Big Hole River, May 6, 1910; Anaconda, May 12, 1911; Choteau, April 30, 1912; Dutton, May 3, 1915, May 1, 1916, and May 9, 1917 (DuBois, MS). The only fall date is from Miles City, September 24, 1900 (Hedges, coll. Univ. Montana).

While this bird is undoubtedly a common breeder, the finding of the nest has been recorded only a few times. I found two at Warm Springs, Deer Lodge County, June 16, 1911, both containing eggs, and another at Priest Butte Lakes, Teton County, June 9, 1912, containing three newly hatched young and an egg. Young are common on the wing by June 30.

226. ***Ammodramus bairdi*** (Audubon)

BAIRD SPARROW

A rare and little known summer resident or migrant on the prairies of the eastern half of the state. Recorded from but two localities: In Custer and Dawson counties it is an irregular migrant in September, where the birds were common September 6 to 10, 1902 (Cameron, 1908a, p. 39). In Teton County birds were noted September 4, 1911, and May 23, 1912 (Saunders, 1914a, p. 138), where they were suspected to be breeding, and where the species has since been found breeding, near Dutton. Two nests have been found there, one with six eggs, advanced in incubation, July 18, 1916, and the other with four eggs, the last one laid July 20, 1916 (DuBois, MS). Mr. DuBois also gives May 24, 1917, as the date of its arrival in spring migration at Dutton.

It is possible that this bird also breeds in more eastern parts of Montana, for it has been found breeding in Dakota, at one point, Harding County (Visher, 1911, p. 14), within a few miles of the Montana border.

227. ***Ammodramus savannarum bimaculatus*** Swainson

## WESTERN GRASSHOPPER SPARROW

A summer resident of prairies and of the lower mountain valleys throughout the state. Rare in most places. Most common on the prairies to the eastward, and recorded from only two localities within the mountains. In eastern Montana it is reported as common on the Yellowstone and Musselshell (Allen, 1874, p. 57), common on the Upper Missouri (Grinnell, 1876, p. 645), and common in Fergus County (Silloway, 1903a, p. 55). It is reported also from Dawson County (Cameron, 1908a, p. 39). In the western part of the state it is reported from Gallatin County (Richmond and Knowlton, 1894, p. 305, and Saunders, 1911a, p. 42), and from Flathead Lake (Silloway, 1901a, p. 62), the last being the only locality west of the continental divide.

There are few data on the migration of this species. In Fergus County it arrives about May 10 (Silloway, 1903a, p. 55). It is reported to arrive at Great Falls, May 8, 1885, and May 9, 1887 (Williams, 1888a, p. 15), and the only fall date is Dawson County, September 16, 1904 (Cameron, 1908a, p. 39).

The only breeding record is of a nest found at Polson, July 27, 1915, containing four eggs with incubation advanced (Saunders, 1916c, p. 86).

228. ***Chondestes grammacus strigatus*** Swainson

## WESTERN LARK SPARROW

An abundant summer resident of eastern Montana, becoming rare westward. Found chiefly in the prairie region, but with one or two records in the mountains, and one west of the continental divide. This species is evidently one of the few in the state that are characteristic of the Upper Sonoran zone. In Custer and Dawson counties it is very abundant, nesting in the pine hills, in the badlands, and on the prairies (Cameron, 1908a, p. 39). It is also reported as abundant on the Yellowstone and Musselshell (Allen, 1874, p. 58), on the Upper Missouri (Grinnell, 1876, p. 646), in the Big Horn region (McChesney, 1879, p. 2387), at Fort Custer (Mearns, 1904, p. 21), and at Fort Benton (Cooper, 1869a, p. 77). West of these localities the species becomes rare, not having been noted at Lewistown (Silloway, 1903a, p. 55), nor commonly by other observers at points farther west. It is reported from Billings (Jones and Dawson, 1900, p. 32) and from Gallatin County (Richmond and Knowlton, 1894, p. 306; Saunders, 1911a, p. 42). It is rare in Teton County. Seen once near Choteau, July 18, 1911 (Saunders, 1914a, p. 138), and on two occasions at Dutton, one June 24, 1915, and three June 4, 1916 (DuBois, MS). The only records west of the divide are from Missoula, where single birds were seen May 27 and June 28, 1917 (Kittredge, MS).

The migrations take place in late April or early May. Six years' observations at Terry give an average date of arrival as May 7, with April 27 (1897) the earliest. Three years at Great Falls average May 12, with May 8 (1899) the earliest (Cooke, 1911, p. 85). No information regarding the fall migration is available.

The only information concerning nesting is from Custer and Dawson counties. There the eggs are laid by the middle of June, the young are out by July 15, and there is probably a second brood (Cameron, 1908a, p. 39).

229.

**Zonotrichia querula** (Nuttall)

## HARRIS SPARROW

A rare fall migrant in the eastern part of the state, occurring westward to Cascade and Gallatin counties. Very rare in spring. Records are as follows: Fort Keogh, September 22 to October 13, 1889 (Thorne, 1895, p. 217); Fort Custer, October 21, 1885 (Cooke, 1913b, p. 303); Miles City, one September 22, 1900 (Hedges, coll. of L. B. Bishop); Gallatin Valley, October 11 to 29, 1913, October 13, 1915, and October 20 to 30, 1916 (Lundwall, MS); Great Falls, October 10, 1915 (Kittredge, MS). There is a single spring record, from Knowlton, Custer County, one bird seen May 24-25, 1907 (Cameron, 1908a, p. 40).

230.

**Zonotrichia leucophrys leucophrys** (J. R. Forster)

## WHITE-CROWNED SPARROW

A common summer resident of the mountains east of the continental divide, particularly southward. Common in migrations throughout the state, and may breed rarely west of the continental divide. Found chiefly in the Canadian zone, but in some localities breeds down into the upper Transition in the valleys, where these are not far distant from the mountains. The status and breeding range of this subspecies, as compared with the next, are not thoroughly worked out. Few specimens have been taken in the breeding season, but *leucophrys* and *gambeli* are not difficult to distinguish in the field, when seen closely and in a clear light. At present the data seem to show that *leucophrys* breeds throughout the western half of the state, east of the divide, and that *gambeli* breeds in the northern half of the mountainous section of the state, over the same areas as *leucophrys*. There appear to be no intergrades between the two forms.

I have observed a sitting female of *leucophrys* in Gallatin County from a distance of three or four feet. In Teton County I fed birds in a corral where they were exceedingly tame and allowed an approach to within five or six feet, and where they remained all summer. In the summers of 1914 and 1915 I found both *leucophrys* and *gambeli* in Glacier National Park, where frequent observations showed that the two forms were about equally common. I have never seen *gambeli* in the mountains of the southern part of the state in the breeding season. *Leucophrys* has been taken on the Madison River, August 12, 1872 (Merriam, 1873, p. 687), and at Flathead Lake, June 9, 1906 (Silloway, 1907, p. 53). It has been observed at Belton, July 14, 1915 (DuBois, MS).

The migrations take place in April and May in the spring, and during September and October in the fall. Since the two forms, *leucophrys* and *gambeli*, are found together at those seasons, it is often difficult to separate them and be sure of dates for each. The general data, however, indicate that *gambeli* arrives a little earlier in spring, and leaves a little later in fall, than *leucophrys*.

Dates of arrival for *leucophrys* are as follows: Terry, average of five years May 5, earliest April 21, 1900; Columbia Falls, average four years, April 30, earliest, April 28, 1896 (Cooke, 1912, p. 99); Bozeman, May 4, 1909; Big Hole River, May 6, 1910; Mill Creek, Deer Lodge County, May 10, 1911; Choteau, May 22, 1912; Corvallis, May 18, 1912 (Bailey, MS). Fall: Big Sandy, arrival, average of three years, September 16, earliest, September 10, 1906; departure, average of three years October 7, latest October 16, 1906 (Cooke, 1912, p. 101). Bozeman, September 13, 1908; Three Forks, October 17, 1909; Great Falls, September 18, 1886 (Williams, 1888a, p. 17); Livingstone, October 11, 1915 (Kittredge, MS).

Few nests are on record, though the White-crowned Sparrow nests commonly enough in the mountains of the southwestern part of the state. A nest containing four eggs was found on Middle Creek, Gallatin County, June 24, 1909, at an elevation of 7100 feet. Another nest was found by G. B. Thomas in June, 1909, near Bozeman, where the species breeds away from the mountains.

231. ***Zonotrichia leucophrys gambeli*** (Nuttall)

GAMBEL SPARROW

A common migrant throughout the state, being found in summer, and evidently breeding, in the mountains of the northern part, particularly east of the continental divide. All observers who have done work during the migration season, have mentioned the occurrence of this bird. It is found then chiefly in the mountain valleys, and on the prairies along streams. It has been found in summer on Birch Creek, Teton County (Saunders, 1914a, p. 138) and in Glacier National Park. It is also reported to breed in the Belt Mountains (Williams, 1888a, p. 17) and in Gallatin County (Richmond and Knowlton, 1894, p. 306). The latter record I believe to be an error for *leucophrys*.

Migration dates are as follows: Gallatin County, May 8 to 19, 1909; Silver Bow County, May 5 to 12, 1910; Deer Lodge County, April 29 to May 14, 1911; Choteau, May 8 to 28, 1912; Great Falls, May 9, 1887 (Williams, 1888a, p. 17); Bitterroot Valley, April 29 to May 20, 1911, May 3 to 22, 1912, April 28 to May 22, 1913 (Bailey, MS); Dutton, May 4 to 21, 1916, May 9 to 18, 1917 (DuBois, MS); Missoula and Kalispell, May 2 to June 7 (Kittredge, MS). Fall dates: Gallatin County, September 26 to October 13, 1908; Powell County, September 21 to October 9, 1910; Teton County, September 23 to October 1, 1911; Missoula and Kalispell, September 3 to 23 (Kittredge, MS).

While this species undoubtedly breeds in the more northern mountains, there is no record of the nest having been found.

232. ***Zonotrichia albicollis*** (Gmelin)

WHITE-THROATED SPARROW

A rare migrant in the eastern part of the state, occurring west to Gallatin and Cascade counties. Records: Great Falls, May 12, 1890; Fallon, October 5, 1908 (Cooke, 1912, pp. 102, 105); Fallon Creek, September 6, 1896 (Cameron, 1908a, p. 40); Fort Keogh, September 22, 1900 (Hedges, coll. Univ. Montana);

Gallatin Valley, one bird, June 8, 1915 (Lundwall, MS); Miles City, September 26 and 30, 1919 (Hedges).

233. ***Spizella monticola ochracea* Brewster**

WESTERN TREE SPARROW

An abundant migrant and common winter visitor in valleys and on prairies throughout the state. Reported by all observers who have done work during migrations or in winter. Occurs in grass lands or brush areas in the mountains in migrations, but not in winter.

The migrations of the Western Tree Sparrow are generally in October and April, but in the mountains it often appears early in September, and sometimes remains till May. In Custer and Dawson counties it is reported only in migrations, and not in winter (Cameron, 1908a, p. 40). Migration dates are as follows: Fall arrival: Terry, average of two years October 16, earliest, September 26, 1896 (Cooke, 1909c, p. 254); taken in Bridger Mountains early in September (Grinnell, 1876, p. 645); Bear Creek, Gallatin County, September 11, 1908; Three Forks, October 17, 1909; Race Track, Deer Lodge County, October 30, 1910; Choteau, October 1, 1911; Belton, September 25, 1915; Dutton, October 11, 1915 (DuBois, MS); Great Falls, October 10, 1915 (Kittredge, MS). Spring departure: Big Sandy, average of two years March 16, latest May 9, 1907; Columbia Falls, March 25, 1894 (Cooke, 1909c, p. 254); Sixteen Mile Creek, Gallatin County, April 23, 1909; Helena, April 9, 1911; Collins, Teton County, April 3, 1912; Bitterroot Valley, March 26, 1912; April 5, 1913 (Bailey, MS); Highwood, March 28, 1914; Dutton, April 1, 1915, April 3, 1916 (DuBois, MS); Missoula, March 25 (Kittredge, MS).

One record appears to be in July, though the date is not given. A few were reported as seen between Fort Custer and Terry, and a specimen taken (McChesney, 1879, p. 2387). From the dates of other specimens taken, and reported upon in this work, this must be a summer record, a decidedly unusual occurrence if the record is authentic.

234. ***Spizella passerina arizonae* Coles**

WESTERN CHIPPING SPARROW

A common summer resident throughout the state. Breeds commonly in mountains, in mountain valleys, and in the prairie region, in pine hills and cottonwood groves of the Transition zone, and in Douglas fir or lodgepole pine forests of the Canadian. Reported by observers from all localities in the state. Less common in cottonwood groves of the prairie region than elsewhere, but still very numerous; often abundant in the mountains.

The migrations take place mainly in May and September. At Columbia Falls the average of four years is May 9 and the earliest April 26, 1894. At Terry the average of four years is May 10, earliest May 6, 1893 (Cooke, 1909c, p. 257). Other dates of arrival are: Bridger Creek, Gallatin County, May 21, 1909; Divide Creek, Silver Bow County, May 8, 1910; French Gulch, Deer Lodge County, May 5, 1911; Choteau, May 18, 1912; Bitterroot Valley, May 20,

1912, and May 22, 1913 (Bailey, MS); Missoula, April 19 (Kittredge, MS). Fall dates: Columbia Falls, October 7, 1893 (Cooke, 1909e, p. 258); Bozeman, September 13, 1908; Missoula, September 23 (Kittredge, MS).

Nesting takes place mainly in June and July, and there are usually two broods. There are not many published dates of nesting. The earliest date I can find for eggs is May 28, in Custer County (Cameron, 1908a, p. 11). Young have been seen out of the nest June 17 and 24 at Missoula (Kittredge, MS). I found numerous nests on Pipestone Creek, Jefferson County, in June, 1910, in which the eggs hatched almost uniformly about June 20. The latest nest on record contained eggs July 15, in Custer County (Cameron, 1908a, p. 11). Cameron lists the bird in Custer County as the eastern race, but recent examination of four birds from Miles City (Hedges, coll. Univ. Montana) by Dr. Bishop shows them to be of the western race.



Fig. 26. WESTERN CHIPPING SPARROW ON NEST. PIPESTONE BASIN, JEFFERSON COUNTY; JUNE 16, 1910.

235.

### ***Spizella pallida* (Swainson)**

#### CLAY-COLORED SPARROW

A common summer resident in the prairie region of the eastern part of the state. Not known to occur west of the true prairies. It is reported by all observers in this eastern section, and its western limits in Montana are evidently about Yellowstone County at the south, Fergus County in the middle, and Teton County at the north. It breeds in most places in sage brush, but in regions where sage does not occur, as in Cascade and Teton counties, it occurs in areas of shrubby cinquefoil, buffalo berry and other prairie shrubs.

Migrations take place in May and September. The average of two years' arrival at Terry is May 17, the earliest May 16, 1905. At Great Falls the average of three years is May 24 and earliest May 16, 1891 (Cooke, 1909e, p. 259).

Other spring dates are from Choteau, May 12, 1912 (Saunders, 1914a, p. 138), and Stacey, May 19, 1917 (Kittredge, MS). The only fall date is from Great Falls, September 9, 1891 (Cooke, 1909c, p. 260).

While this bird occurs in summer throughout its range in the state, and undoubtedly breeds, the finding of the nest has not been recorded.

236.

***Spizella breweri* Cassin**

## BREWER SPARROW

A common summer resident of eastern Montana, occurring westward to Teton and Gallatin counties. There are not many records of occurrence, but in most places where it has been found it is fairly common. It breeds in sage brush, and is somewhat more western in its range than *S. pallida*.

Records: Common, breeds at Fort Keogh (Thorne, 1895, p. 217); numerous on the Yellowstone and Musselshell (Allen, 1874, p. 58); common in Gallatin County (Richmond and Knowlton, 1894, p. 306); rare in Teton County (Saunders, 1914a, p. 138).

The only date of migration published is from Fort Custer, May 15, 1885 (Cooke, 1909c, p. 260). The only nesting data are those of a nest and eggs found at Fort Keogh, June 16 (Thorne, 1895, p. 217), and young out of the nest found at Sedan, Gallatin County, July 28, 1909 (Saunders, 1911a, p. 43). In addition to the above records I have found this species common in the Shields River Valley of northern Park County.

237.

***Spizella pusilla arenacea* Chadbourne**

## WESTERN FIELD SPARROW

A rather rare summer resident of southeastern Montana. This is probably one of the species that is characteristic of the Upper Sonoran zone. It is either rare, or else it is overlooked by most observers. It is reported from Billings, August 12, 1900 (Jones and Dawson, 1900, p. 32), from the Long Pine Hills along the South Dakota border (Visher, 1911, p. 14), and from Miles City, May 11, 1902 (Hedges, coll. Univ. Montana). These appear to be all the records.

238.

***Junco aikeni* Ridgway**

## WHITE-WINGED JUNCO

A permanent resident of southeastern Montana in the pine hills. This species was evidently first found in the state by C. F. Hedges, there being a series of eleven specimens in the University of Montana collection, taken by him in the vicinity of Miles City between April 22 and 27, 1900, and a single specimen from the same locality and date in the collection of L. B. Bishop. In November and December, 1909, I found this species in the Long Pine Hills of Carter County, close to the South Dakota border, securing one for identification December 5. The following summer the species was noted again in that place, young being found in the Long Pine Hills, July 20, 1910 (Visher, 1911, p. 14). The species was again found there, and also on the Custer National Forest in Rosebud County

in May, 1917 (Kittredge, MS). An unusual record is that of a single bird, found in a flock of *J. h. connectens* at Missoula, April 15, 1915 (Kittredge, MS).

239. ***Junco hyemalis hyemalis*** (Linnaeus)

SLATE-COLORED JUNCO

A regular migrant in the eastern part of the state, being found occasionally west to the mountain valleys, but not yet reported from west of the continental divide. Reported to breed in eastern Montana, but the fact that only one observer reports this suggests that *aikeni* may have been mistaken for *hyemalis*. Reported from Fort Keogh, with the statement that a few breed (Thorne, 1905, p. 217), in Custer and Dawson counties (Cameron, 1908a, p. 42), from Gallatin County (Saunders, 1911a, p. 43), and from other localities mentioned below.

The migrations take place in April and from September to November, as indicated in the following records. Spring: March 2, 1900, one; April 5, 13 and 16, 1902, three more at Miles City (Hedges, coll. Univ. Montana); Gallatin County, April 16 to May 19, 1909, and April 2, 1911; Dutton, April 11 and 22, 1915, and April 11 and 25, 1916 (DuBois, MS). Fall: Gallatin County, September 11 to November 11, 1908; Choteau, November 7, 1912; Great Falls, October 10, 1915 (Kittredge, MS).

240. ***Junco hyemalis oregonus*** (J. K. Townsend)

OREGON JUNCO

A rare migrant in the western part of the state. The only definite record is that of one taken on Clear Creek, Deer Lodge County, October 9, 1910 (Saunders, 1912c, p. 107). I believe, however, that this form will prove to be rather commoner than this single record indicates. I secured a male bird in Gallatin County, October 6, 1908, which I believe to have been *oreganus*, but was unable to save the specimen. I have seen many others that appeared to belong to *oreganus* rather than *connectens*.

241. ***Junco hyemalis connectens*** Coles

SHUFELDT JUNCO

An abundant migrant in the western part of the state, wintering in smaller numbers on the west side of the divide, and evidently breeding in the northwestern part. In the northern half of Montana this form is rare on the east side of the divide in migrations, but the migrant flocks evidently cross the divide in large numbers about the middle of the state, for in the valleys and lower mountains in the southwestern part this bird is very abundant in migrations. This bird was originally reported as the breeding form at Flathead Lake (Silloway, 1901a, p. 35), but more recently a breeding bird taken there proved to be *montanus* (Saunders, 1916c, p. 86). Mr. Kittredge, however, has found *connectens* breeding at Missoula and in other places in northwestern Montana. If identifications are all correct, this seems to indicate that the two forms are really separate species, as was supposed at first.

The migrations of this subspecies take place in April and from September to November. In southwestern Montana it appears to be a little earlier in spring and later in fall than *mcarnsi* and *montanus*. Dates of migration are as follows: Gallatin County, April 1 to May 8, 1909; Silver Bow County, March 10 to April 5, 1910; Helena, March 26, 1911; Anaconda, April 30, 1911; Missoula, March 1 (Kittredge, MS). Fall dates: Gallatin County, October 6 to November 17, 1908; Jefferson County, September 22 to October 13, 1909; Deer Lodge County, October 14, 1910; Taylor's Fork, Gallatin County, September 7-8, 1890 (Richmond and Knowlton, 1894, p. 306); Elk Park, Silver Bow County, September 8, 1910; Missoula, November 28 (Kittredge, MS).

Winter records: Missoula, uncommon in winter (Kittredge, MS); Kalispell, December 26, 1916 (Sloanaker, MS). The only record for eastern Montana is from Miles City, January 15, 1900 (Hedges, coll. Univ. Montana).

The only notes on nesting that relate to this form are of a nest and four eggs found at Flathead Lake, July 9, 1902 (Silloway, 1901a, p. 35). Young out of the nest seen at Missoula, May 15 and June 13 (Kittredge, MS).



Fig. 27. NEST AND EGGS OF MONTANA JUNCO. BELTON; MAY, 1914.  
PHOTO BY A. D. DuBOIS.

242.

***Junco hyemalis montanus* Ridgway****MONTANA JUNCO**

A common summer resident of the mountains of northwestern Montana, east of the edge of the prairie region. A migrant in southwestern Montana, and perhaps found in winter in the lower mountain valleys west of the divide. Occurs rarely in migrations in the eastern part of the state: One taken at Miles City, October 5, 1919 (Hedges, MS). This is the common breeding junco in the northern half of the mountainous section of the state. The exact limits of its breeding range are not completely worked out, but it breeds at Tobacco Plains, Sum-



Fig. 28. MONTANA JUNCO ON NEST. BELTON; MAY, 1914.  
PHOTO BY A. D. DUBOIS.

mit, St. Mary's Lake and Columbia Falls (Ridgway, 1898, p. 319), and I have found it in the breeding season in Teton and northern Lewis and Clark counties, in the Glacier National Park, and at Flathead Lake (1916c, p. 86). The southern limit of its breeding range is apparently at about the line of the Northern Pacific Railroad between Helena and Missoula. What form of junco breeds in the Snowy Mountains and other ranges to the eastward is still in question (Silloway, 1903a, p. 57), but there seems reason to think it should be *mcarnsi* and not *montanus*. It is possible, however, that the two forms are distinct species, as at

first supposed, and the answer to this question could be best worked out by collecting on the breeding ranges in Montana.

Dates for the migration of this form are as follows: Silver Bow County, March 10 to April 5, 1910; Bozeman, April 20, 1909, and April 2, 1911; Chouteau, April 2, 1912; Helena, March 23, 1915 (Kittredge, MS); Bozeman, October 9, 1908; Jefferson County, September 27 to October 13, 1909; Powell and Deer Lodge counties, September 8 to October 14, 1910; Neilhart, October 7, 1915 (Kittredge, MS); Corvallis, April 17, 1911 (Bailey, MS).

The only notes on the breeding of this form are of a nest and four eggs at Belton, May 26, 1914, of which the eggs hatched May 30, and the young left the nest June 12; and of another nest with two eggs found at the same place July 2, 1915 (DuBois, MS).

243.

***Junco hyemalis mearnsi* Ridgway**

PINK-SIDED JUNCO

A common summer resident of the mountains of southwestern Montana. The exact range of this form is not completely worked out, but in the western half of the state it probably ranges north to about the line of the Northern Pacific Railroad between Helena and Missoula. East of the continental divide it may range north to the northern border of the state in the more eastern mountain ranges, but the subspecies in these ranges has not been determined. *Mearnsi* has been found breeding in the Big Horn Mountains (Merrill, 1881, p. 205); in Gallatin County (Richmond and Knowlton, 1894, p. 306); in Jefferson, Silver Bow, Deer Lodge and southern Powell counties (Saunders, 1912a, p. 29), where it breeds north at least as far as Gold Creek; and in Park County. It has also been found at Helena and in the Bitterroot Valley in migration.

The migrations take place in March and April, and in September and October. Spring dates are: Bozeman, April 11, 1909; German Gulch, Silver Bow County, March 23, 1910; Helena, March 26, 1911; Corvallis, March 22, 1913 (Bailey, MS). Fall: Tom Minor Basin, Park County, October 21, 1908; Homestake, Jefferson County, October 23, 1909; Willow Creek, Powell County, September 25, 1910.

Only two nests are on record. One found in the Big Horn Mountains contained five eggs advanced in incubation June 13, 1880 (Merrill, 1881, p. 205). A nest with four eggs advanced in incubation was found in the Bridger Mountains, Gallatin County, July 19, 1908 (Saunders, 1911a, p. 43). I have found young out of the nest and on the wing in Jefferson County, June 24, 1910, and again July 11, 1910.

244.

***Amphispiza nevadensis nevadensis* (Ridgway)**

SAGE SPARROW

A locally common summer resident in southern Montana. This bird has been found, so far, only in Gallatin and Park counties, but it probably occurs in other neighboring counties both eastward and westward. The fact that it occurs in Fremont County, Idaho (Rust, 1917, p. 39) indicates that it should almost

certainly be found in suitable localities in Madison and Beaverhead counties. It has been recorded from the Gallatin Basin, and from the neighborhood of Sedan in Gallatin County (Saunders, 1911a, p. 44), where it is quite common in sage brush areas. I have also noted it common in Park County, in the Shields River Valley, on Traill Creek, and at other points a few miles west of Livingstone. These are the only records. No migration dates are available, and, although the bird undoubtedly nests, there are no records of its nesting at present.



Fig. 29. NEST AND EGGS OF MOUNTAIN SONG SPARROW. HOMESTAKE, JEFFERSON COUNTY; JUNE 22, 1910.

245.

***Melospiza melodia montana* Henshaw**

MOUNTAIN SONG SPARROW

A common summer resident of the western half of the state. Also found somewhat less commonly in many localities throughout the winter. Breeds in the Transition zone in the mountain valleys and lower mountains, in willow thickets along streams. Found eastward to the edge of the prairies but not in the prairie region itself. The easternmost localities where it breeds are Teton County at the north (Saunders, 1914a, p. 138), Fergus County in the center of the state (Silloway, 1903a, p. 57), and Columbus, Stillwater County, and Joliet,

Carbon County in the south (Thomas, MS). This species is reported by all observers in mountainous parts of the state, but the form breeding west of the mountains is in doubt, and is probably *merrilli* instead of *montana*.

Migrations take place in late March or April, in the spring, and probably during October in the fall. At Columbia Falls the average arrival is March 21, the earliest March 19, 1896. At Great Falls the average is April 3, and the earliest March 27, 1887 (Cooke, 1911, p. 68). The only other dates I have obtained are from Silver Bow County, March 31, 1910 (Saunders, 1912a, p. 29), and from Corvallis, March 11, 1912, and October 4, 1911 (Bailey, MS). The latter two dates refer to specimens definitely identified as *montana*, but the Columbia Falls dates given above may belong to *merrilli*. In other localities it is hard to get migration dates because of the number of birds that winter. I have found this species in winter in Gallatin, Park and southern Lewis and Clark counties, and it has been reported, with subspecies perhaps doubtful, at Missoula (Kittredge, 1916, p. 39).

The nesting probably takes place in late May and June, but records of the nesting have not been published. All that I have pertains to a nest and four eggs found at Homestake, Jefferson County, June 22, 1910. This is evidently a later date than the average for eggs, as young are usually seen after the middle of June.

246.

### **Melospiza melodia juddi** Bishop

#### DAKOTA SONG SPARROW

A summer resident in the vicinity of Miles City, and probably in other parts of extreme eastern Montana. A series of specimens taken by Mr. C. F. Hedges has recently been examined by Dr. Bishop, and compared with birds from the type locality in his collection. They are entirely typical of *juddi*. The series includes nine birds in the University of Montana collection, most of them taken between April 3 and May 3, 1900, and 1902, one taken February 17, 1900, and three juveniles, taken August 3 and 10, and September 27, 1900. In addition, there are ten birds taken at various dates between July 20 and August 24, 1919, including adults and juveniles of both sexes. This bird has not been found nesting, but the occurrence of juveniles in August leaves hardly any doubt that it does so. The February date indicates that the Dakota Song Sparrow sometimes winters, though this winter bird is not quite as typical of the race as others.

A specimen taken April 16, 1889, and referred to *melodia* (Thorne, 1895, p. 217) probably also belongs to this race, as Thorne's list was published before *juddi* was described. The fact that Thorne took but a single bird, and that Cameron did not find it at all, would seem to indicate that it is rare. On this point, however, Mr. Hedges writes as follows: "I do not find it so. While it is not abundant, one may see or hear it in spring or fall in suitable places, such as brushy draws containing water, and river bottoms containing rose-brush and willow." It is possible that this species has increased in recent years or that its range is slowly spreading westward from Dakota.

247.

**Melospiza melodia merrilli** Brewster

MERRILL SONG SPARROW

This form of song sparrow occurs in northwestern Montana, west of the continental divide. It may be the regular breeding subspecies in that region, but *montana* has been found there too, and other birds are doubtful as to subspecies. *Merrilli* has been taken at Corvallis, December 12, 1911 (Bailey, MS), and at Polson Swamp, July 12, 1915 (Saunders, 1916c, p. 86).

248.

**Melospiza lincolni lincolni** (Audubon)

LINCOLN SPARROW

A common summer resident of the mountains in the western half of the state, occurring throughout the state in migration. Breeds in the Canadian zone



Fig. 30. NEST AND EGGS OF THE LINCOLN SPARROW.  
PIPESTONE CREEK, JEFFERSON COUNTY; JUNE  
22, 1910.

in the mountains, in willow thickets along the borders of mountain streams, choosing a habitat corresponding to that of the song sparrow in the Transition zone. In migration found in the valleys and prairies to the eastern limits of the state. The most eastern points where it has been found in the breeding season are Teton County (Saunders, 1914a, p. 139) in the north, and Park County in the south. In the center of the state it has not been noted east of Jefferson County, but probably breeds in the higher mountains farther east.

The migrations take place in May and September. Where found in migrations only, it occurs somewhat earlier than on the breeding grounds, a fact that would seem to indicate that the earlier migrants breed farther north. Dates of spring arrival on the breeding grounds are as follows: Brackett Creek, Gallatin County, June 3, 1909; Pipestone Basin, Jefferson County, June 3, 1910; Rocky Canyon, Gallatin County, May 29, 1911; and Blackleaf, Teton County, May 29,

1912. Spring migration dates, in places where the birds do not breed, are as follows: Fort Keogh, May 6 and 10, 1889 (Thorne, 1895, p. 217); Miles City, May 4 and 9, 1902 (Hedges, coll. Univ. Montana); Terry, May 10, 1897 (Cameron, 1908a, p. 42); Great Falls, May 15, 1892, and Columbia Falls, May 15, 1895 (Cooke, 1913b, p. 237).

Fall migration dates are as follows: Dawson County, August 27, 1904 (Cameron, 1908a, p. 42); Miles City, September 20, 1900 (Hedges, coll. L. B. Bishop); Gold Creek, August 27, 1910; and Sun River, September 19, 1911. None of these dates is from the breeding grounds, but possibly one from the Rocky Mountains, August 23, 1874 (Cones, 1874b, p. 596), is, and indicates about the date of departure.

The only breeding records pertain to three nests found on Pipestone Creek, Jefferson County, in 1910. These are as follows: One with four eggs June 18, 1910, from which the young emerged June 20, and one with three eggs June 19, and one with five eggs June 22. A young bird out of the nest was also found in this vicinity June 26 (Saunders, 1910d, p. 198).

249. **Melospiza georgiana** (Latham)

SWAMP SPARROW

A rare migrant or winter visitor in the eastern part of the state. Four birds taken at Miles City by C. F. Hedges: February 17, 1900, one (coll. Univ. Montana), October 2, 1919, two, and October 24, 1919, one. Two more western records are as follows: Flathead Lake, one young bird, doubtfully identified, taken August 11, 1904 (Silloway, 1901a, p. 64); Elk Park, Silver Bow County, one seen September 8, 1910 (Saunders, 1912a, p. 29).

250. **Passerella iliaca iliaca** (Merrem)

EASTERN FOX SPARROW

A rare migrant, chiefly in the eastern part of the state, ranging west to the foothills of the mountains. There are three records. Fort Custer, one taken October 8, 1885 (Bendire, 1889b, p. 109); Great Falls, a rare migrant in spring, two or three taken, one on May 9, 1887 (Williams, 1888a, p. 18); Hamman Gulch, Sun River, Teton County, one seen October 18, 1911 (Saunders, 1914a, p. 139).

251. **Passerella iliaca schistacea** Baird

SLATE-COLORED FOX SPARROW

A common summer resident in the western half of the state in the mountains. Breeds in dense willow thickets along streams in the upper Transition and lower Canadian zones. Where the proper conditions prevail this species is often abundant locally, but it is rare in other localities, and has not been noticed by many observers. It has not been recorded east of the mountainous section of the state. Specific points of occurrence are as follows: Flathead Lake, taken at Echo Lake, July 3, 1900 (Silloway, 1901a, p. 64); Gallatin County, abundant, breeding both in the mountains and in the higher parts of the Gallatin Valley,

about Bozeman (Saunders, 1911a, p. 44); common in Jefferson, Powell, Deer Lodge and Silver Bow counties (Saunders, 1912a, p. 29); rare in Teton and Lewis and Clark counties (Saunders, 1914a, p. 139); one at Lake Como, August 3, 1911 (Bailey, MS). I have also seen this species commonly along the mountain streams of western Park County and have noted it in Glacier National Park, in willow thickets at the outlet of Gunsight Lake, at Summit on the Great Northern Railroad, and along the trail between Iceberg and McDermott lakes.

The spring arrival on the breeding grounds takes place in April. Dates are: Bozeman, April 9, 1909, and April 2, 1911; Divide Creek, Silver Bow County, April 11, 1910. The fall migration is not so easily determined. The latest date I have is from Gold Creek, Powell County, August 27, 1910, but I believe the species remains later than this.

The nesting has not been recorded from this state. Mr. G. B. Thomas has informed me that he has found nests containing both eggs and young near Bozeman, but exact dates are lacking. The abundance of this species in the breeding season seems to have been overlooked by most observers, due to the fact that the birds inhabit the most impenetrable willow thickets, and are very difficult to observe. During the spring they are conspicuous because of the loud, clear song, which may be heard from the first arrival in April until early in July. After that date the birds are very hard to find. The work of most observers in western Montana has been confined to the summer, after this species has ceased to sing, which accounts for their not finding it in regions where it is common.

252.

**Pipilo maculatus arcticus** (Swainson)

ARCTIC TOWHEE

A summer resident throughout the state, common in most localities. Perhaps not found in extreme northeastern Montana, and rare in some places west of the divide. Breeds in the Transition zone, in thickets of willow, wild rose and other shrubs. Recorded by all observers through the eastern part of the state, and in the mountainous part east of the divide, but there are only a few records west of the divide. It is not recorded from the Bitterroot Valley, and I have no note of its occurrence in the vicinity of Missoula. At Flathead Lake it is common about Big Fork and rare at Yellow Bay. In Deer Lodge, Jefferson, Silver Bow and Powell counties I noted it but once, in the course of two years observation, then only in spring migration and not breeding. It is quite probable that the few birds that do breed west of the divide belong to a more western race than *arcticus*.

Migrations take place in May and September. Eight years at Terry give May 10 for the average, and May 2, 1894, the earliest. Eight years at Great Falls average May 11, with May 6, 1904, the earliest (Cooke, 1912, p. 289). Other dates are: Lewistown, May 2, 1900, and May 4, 1901 (Silloway, 1903a, p. 58); East Gallatin River, May 12, 1909; Anaconda, April 15, 1911; and Choteau, May 12, 1912. Fall departures in northern Montana average September 24, with October 9, 1905, the latest (Cooke, 1912, p. 290). Another fall date is from Bozeman, September 13, 1908.

Nesting takes place in June. A nest in Custer County contained five eggs June 20, 1898 (Cameron, 1908a, p. 43). In the Big Horn Mountains nests were found from the middle of May to late July (Merrill, 1881, p. 206).

253.

***Oreospiza chlorura* (Audubon)**

## GREEN-TAILED TOWHEE

A rather rare summer resident of southwestern Montana. Breeds in the Transition zone, in thickets of wild rose and similar small shrubs that grow along the foothills of the mountains. Recorded from only a few localities, as follows: Gallatin County (Richmond and Knowlton, 1894, p. 306; Saunders, 1911a, p. 44); noted in this same locality August 11, 1900 (Jones and Dawson, 1900, p. 29); Fish Creek, Silver Bow County, July 21, 1910, one seen (Saunders, 1912a, p. 29). I have also seen this species in Park County, on Eight Mile Creek, August 22, 1908, and believe that it probably occurs also in Madison and Beaverhead counties along the southern border of the state.

The only migration dates are from Bozeman, May 27, 1909, and May 28, 1911. There is no record of the nest having been found in the state, though the species undoubtedly breeds.

254.

***Zamelodia ludoviciana* (Linnaeus)**

## ROSE-BREADED GROSBEAK

Two records only. A male bird was observed twice, in June and July, 1909, at Bozeman by G. B. Thomas (Saunders, 1911a, p. 44), and another at Billings, June 4, 1918 (Thomas, MS). While these records are based on sight identification, the appearance of the species is such that a male bird could not easily be mistaken for anything else, and knowing personally that Mr. Thomas is well acquainted with birds, I do not hesitate to include the record.

255.

***Zamelodia melanocephala* (Swainson)**

## BLACK-HEADED GROSBEAK

A common summer resident throughout the state. Breeds in the Transition zone, in willow thickets and cottonwood groves bordering streams, on the prairies and in the mountain valleys, but not found in the mountains. Recorded by nearly all observers from all parts of the state.

Migrations take place in late May and August. Dates are as follows: Fort Custer, May 14, 1885; Great Falls, average of four years May 23, earliest May 20, 1891; Columbia Falls, average of two years May 26, earliest May 25, 1895 (Cooke, 1912, p. 158); Bozeman, May 27, 1909; Bitterroot Valley, May 30, 1910, May 21, 1911, and May 22, 1913 (Bailey, MS). Fall dates: Bozeman, August 12, 1909; Gold Creek, Powell County, August 27, 1910.

Nesting begins soon after the arrival in early June. Nests containing four eggs advanced in incubation were found at Flathead Lake, June 14 and 19, 1900 (Silloway, 1901a, p. 25). A nest with four eggs, one of them a Cowbird's, was found at Choteau, July 7, 1912.

256.

***Passerina amoena* (Say)**

## LAZULI BUNTING

A common summer resident throughout the western half of Montana, becoming rather rare eastward, but evidently found throughout the state. Breeds in the Transition zone, in low thick bushes, such as wild rose, currant, gooseberry and similar shrubs. All observers in mountainous parts of the state report this species as common, not in the higher mountains, but in the foothills. It is omitted from many lists in the prairie region but is recorded from the Yellowstone and Musselshell (Allen, 1874, p. 59), from Fort Keogh (Thorne, 1895, p. 217), from Miles City (Hedges, coll. Univ. Montana), and from Custer and Dawson counties (Cameron, 1908, p. 43). In the latter case, however, the observations



Fig. 31. NEST AND EGGS OF BLACK-HEADED GROSEBEAK, WITH ONE EGG OF THE COWBIRD. CHOTEAU; JULY 7, 1912.

on habits and nesting, and the migration dates, indicate that some other species was mistaken for the Lazuli Bunting, perhaps *Sialia sialis*, the general coloring of which is similar.

The migrations occur in May and August. Dates are as follows: Miles City, May 11, 1902 (Hedges, coll. Univ. Montana); Bozeman, May 29, 1909; German Gulch, Silver Bow County, May 23, 1910; Rocky Canyon, Gallatin County, May 29, 1911; Bitterroot Valley, May 20, 1910, June 5, 1911, May 26, 1912, and May 31, 1913 (Bailey, MS). Fall dates are from Traill Creek, Park County, August 23, 1908, and Gold Creek, Powell County, August 28, 1910.

This species has been found nesting at Flathead Lake, but the date not given (Silloway, 1901a, p. 24). In the Bitterroot Valley a nest contained two eggs and one of the Cowbird on June 15, 1910, another Cowbird's egg being added two

days later. Another nest with two eggs was found July 23, 1911, in which one egg hatched July 30 and the young left by August 12 (Bailey, MS). I found a nest with four eggs at Yellow Bay, Flathead Lake, July 22, 1915.

257.

***Calamospiza melanocorys* Stejneger**

## LARK BUNTING

A summer resident probably throughout the state, in valleys and on the prairies, breeding in open grass areas. In the eastern part of the state quite common, but rare or irregular westward, and only recorded from two localities west of the divide. All observers in extreme eastern Montana record this species. Westward, records are not so common, though the Lark Bunting apparently breeds regularly in mountain valleys east of the divide in small numbers, such as at Three Forks (Saunders, 1911a, p. 44), and in Broadwater County (Saunders, 1912f, p. 218). The records west of the divide are as follows: Deer Lodge Valley, two seen May 14, 1911 (Saunders, 1912a, p. 29); Bitterroot Valley, common in August, 1908, and a few seen in the spring of 1909 (Bailey, MS).

This species evidently fluctuates greatly in abundance from year to year. There is considerable evidence to show that it was very abundant in mountain valleys, east of the divide, at least, in 1907. I was first informed of this, in regard to the Gallatin Valley, by Prof. R. A. Cooley of the Montana Agricultural College. Later I heard more of this from various sources, people not acquainted with birds describing the species to me, telling how common it was, and how easily nests could be found. This referred to the Jefferson Valley and to the regions about Townsend, Helena, Choteau and Great Falls. Evidence of unusual abundance in Fergus County also shows in the writings of Mr. Silloway, who considered the species not very common in 1902 (1903a, p. 58), but mentions the commonness of its nests in 1907 (1909, p. 87).

Migrations take place in May and probably in August. Eight years at Terry give May 15 for the average arrival, and May 10, 1893, the earliest (Cooke, 1914b, p. 267). Other dates of arrival are as follows: Gallatin Valley, May 24, 1909; Deer Lodge Valley, May 14, 1911; Dutton, May 19, 1915, and May 29, 1916 (DuBois, MS). There are no definite dates for fall migration. Occurrences in August are mentioned by several writers, but not later than that by any.

Nests have been found frequently, and there are probably two broods in a season. The earliest nest is one which contained three eggs May 25 and seven on May 29, the young being out by June 10 (Cameron, 1908a, p. 43). The majority of nests are found in June or early July. The latest was one containing eggs at Two Forks of the Milk River, July 21, 1874 (Cones, 1874b, p. 599). The species is frequently imposed upon by the Cowbird. Out of eighteen nests found on the Yellowstone and Musselshell, five contained Cowbird's eggs (Allen, 1874, p. 58).

258.

***Piranga ludoviciana* (Wilson)**

## WESTERN Tanager

A common summer resident of the western half of the state, eastward to the

most eastern mountain ranges. Occurs rarely in migration in the prairie region. Breeds in the Transition and Canadian zones, showing a marked preference for forests of Douglas fir on the east side of the divide, and for mixed forests of Douglas fir, yellow pine and larch on the west side. Occurs in migration in cottonwood groves in the valleys.

Migrations take place in late May or early June, and in August. The average of five years at Columbia Falls is May 18, and the earliest May 13, 1897 (Oberholser, 1918, p. 18). Other dates are: Bozeman, June 10, 1909; Pipestone Basin, June 5, 1910; Bozeman, May 29, 1911, and Teton County, June 4, 1912; Dutton, May 27, 1914 (DuBois, MS), and Kalispell, June 5, 1916 (Sloanaker, MS). Fall dates are: Columbia Falls, September 10, 1894, and Missoula, September 11, 1915 (Oberholser, 1918, p. 19); Gold Creek, August 27, 1910; Hannan Gulch, Teton County, August 28, 1911, and Flathead Lake, August 20, 1914. One from Fort Keogh, June 1, 1902 (Hedges, coll. Univ. Montana) is the only record from the prairie region.

This species begins nesting in the latter part of June. It was noted building its nest in the Belt Mountains June 26, the nest being complete but empty, July 3 (Williams, 1882a, p. 62). At Flathead Lake a nest containing three young was found June 21, 1900 (Silloway, 1901a, p. 23), and another with four eggs, July 4, 1903 (Silloway, 1903b, p. 299). Another nest was being built at Yellow Bay, Flathead Lake, June 24, 1916, and the birds were seen feeding young July 22 (Sloanaker, MS). Young out of the nest were observed at Belton, July 15, 1916 (DuBois, MS).

259. **Progne subis subis** (Linnaeus)

PURPLE MARTIN

A summer resident, perhaps throughout the state, but most of the records are in the eastern part in the prairie region. Records are as follows: Seen frequently on the Yellowstone between Tongue River and Pompey's Pillar (Allen, 1874b, p. 54). A pair seen on the Yellowstone (McChesney, 1879, p. 2386). Abundant in mountains, breeds (Grinnell, 1876, p. 644). Numerous in timbered river bottom at Fort Custer (Mearns, 1904, p. 21). Several seen at Lewistown, May 10, 1902 (Silloway, 1903a, p. 59). Not common in Custer and Dawson counties. Arrives about May 15 (Cameron, 1908a, p. 44). Rare at Billings (Thomas, MS). Bozeman, June and July, 1909 (Saunders, 1911a, p. 45). Very plentiful at Bowen, Big Hole Basin, breeding in bird boxes (Forrest, 1914, p. 195). The last two records are the only ones that are not from the prairie region of the state. Three years give an average of May 14 for spring arrival at Great Falls, with the earliest May 10, 1906 (Oberholser, 1918, p. 148).

260. **Petrochelidon lunifrons lunifrons** (Say)

CLIFF SWALLOW

An abundant summer resident throughout the state, reported by all observers. On the whole the most abundant and widely distributed swallow in the state. Breeds in the Upper Sonoran and Transition zones, on cliffs in badlands

and along river canyons, and on buildings, preferring either stone buildings or wooden ones that are not painted. Nests in colonies that are sometimes very large.

The migrations take place in May and August. The birds evidently arrive somewhat earlier in the prairie region than in the mountain valleys. Six years at Terry give an average of May 16, with the earliest date May 8, 1900. Four years at Big Sandy average May 12, with the earliest May 2, 1905 (Oberholser, 1917, p. 321). In more western localities dates are as follows: Gallatin County, June 4, 1909; Gregson, Silver Bow County, May 30, 1910; Anaconda, May 28, 1911; and Choteau, May 17, 1912; Bitterroot Valley, May 27, 1910, May 24, 1911, May 25, 1912, and May 16, 1913 (Bailey, MS). Fall dates are: Columbia Falls, September 4, 1895 (Oberholser, 1917, p. 322); Logan, Gallatin County, August 25, 1909; Nyack, August 21, 1915 (DuBois, MS).

This species nests very abundantly, but there seem to be no records to show when eggs are laid. I have noted birds building nests or gathering material from June 23 until as late as July 11. One colony at Choteau began building on July 1, but had no eggs laid or nests lined by July 6. The nests were knocked down by the owner of the building a day or two later, and I found out nothing more. I have noted broken egg shells at the foot of a cliff on which these swallows were nesting, late in July, shells that I believe were thrown out of the nest by the old birds immediately after the eggs hatched.

261.

***Hirundo erythrogaster* Boddaert**

## BARN SWALLOW

A regular summer resident throughout the state, commoner eastward, but nowhere abundant. The numbers of this species are very few when compared to the Cliff Swallow. Reported by nearly all observers and from all parts of the state. Nests in the upper Sonoran and Transition zones in barns on rocks and under bridges.

The migrations occur in May and late August or early September. Seven years at Terry average May 11, with the earliest May 5, 1894, and four years at Great Falls average May 15, with the earliest May 12, 1890 (Oberholser, 1918, p. 151). The average arrival in Custer and Dawson counties is May 13 (Cameron, 1908a, p. 45). Other dates of arrival are: Gallatin Valley, May 24, 1909 and May 28, 1911; Choteau, May 23, 1912; Bitterroot Valley, May 13, 1910, May 24, 1911, May 13, 1912, and May 7, 1913 (Bailey, MS). The only definite fall date I have is from Fridley, Park County, August 29, 1908. It is, however, mentioned as abundant in Gallatin County in early September (Richmond and Knowlton, 1894, p. 306), and is recorded from Great Falls, September 4, 1889 (Oberholser, 1918, p. 152).

There are only a few notes on the nesting of this species in Montana. Two broods are raised in Custer and Dawson counties (Cameron, 1908a, p. 45). Birds were observed gathering nesting material at Bowen, in the Big Hole Basin, June 20, 1913 (Forrest, 1914, p. 195). The only nests that I have seen have been in July, in locations where it was impossible to determine their contents. A nest

containing young was found under a bridge at Dutton, July 13, 1916 (DuBois, MS).

262.

***Iridoprocne bicolor* (Vieillot)**

## TREE SWALLOW

A summer resident throughout the state. Very common in the northwestern part of the state, rare or locally common in most places elsewhere. Breeds in the Transition zone in holes in trees, or in bird-houses, crevices in buildings, and similar places. Shows a marked preference for the vicinity of water. While this species breeds locally in many parts of the state, at Flathead Lake it is the most abundant swallow, breeding in dead trees all around the lake shore, and in bird-houses in towns and settlements. It is also common at Kalispell and on the Flathead Reservation, and is reported as a common breeder in the Bitterroot Valley (Bailey, MS). In the mountainous half of the state, east of the continental divide, this species has been reported only from Gallatin County (Richmond and Knowlton, 1894, p. 306), and from Park County and the vicinity of Helena. In the prairie region it is reported from Fergus County (Silloway, 1903a, p. 60), Custer and Dawson counties (Cameron, 1908a, p. 45), Musselshell River (Allen, 1874, p. 53), and Great Falls (Williams, 1888a, p. 16).

The migrations are irregular, the species arriving most commonly in April and leaving in the latter part of August. Four years' observations at Great Falls give April 29 for the average, and April 28, 1891, the earliest, while it was noted at Missoula, March 26, 1916 (Oberholser, 1917, p. 324). Other dates of arrival are: Bozeman, May 4, 1909; Helena, April 9, 1911. In fall the last birds are usually seen late in August. Dates are as follows: Missoula, August 8, 1915 (Oberholser, 1917, p. 325); Eight Mile Creek, Park County, August 24, 1908; Logan, Gallatin County, August 25, 1909.

Nesting probably begins in late June. A nest with one egg was found at Flathead Lake, June 24, 1900 (Silloway, 1901a, p. 22). I have noted birds feeding young at Flathead Lake in July, and have seen young on the wing at Polson, July 27, 1915. The birds have been noted feeding young in Gallatin County in August (Richmond and Knowlton, 1894, p. 306).

263.

***Tachycineta thalassina lepida* Mearns**

## NORTHERN VIOLET-GREEN SWALLOW

A summer resident evidently throughout the state, rare or local in the eastern half, but very common in the proper localities throughout the western half. Breeds in the Transition zone, in holes in rocks along the sides of river canyons, and less commonly in bird houses or holes in trees. Reported by nearly all observers in the western half of the state, but only by a few in the eastern half. The eastern records are as follows: Mouth of Tongue River and along the Yellowstone above it (Allen, 1874, p. 53); abundant on the Big Horn River (Mearns 1904, p. 21); Powder River (Cameron, 1908a, p. 45); west of Billings (Thomas, MS).

The migrations take place chiefly in May and August. It is stated to arrive

at Great Falls with the Tree Swallow about May 1 (Williams, 1888a, p. 16). Dates of arrival at other points are: Fridley, Park County, May 14, 1909; Big Hole River, Silver Bow County, May 6, 1910; Anaconda, May 12, 1911. Dates of departure are: Eight Mile Creek, Park County, August 24, 1908; Jefferson River, August 25, 1909.

There are no records of the securing of eggs in the state. I watched the birds nest-building on the Boulder River, Jefferson County, June 6, 1911, and secured young able to fly on the Pend-Oreille River near Polson, July 23, 1914 (1915b, p. 114). In the Bitterroot Valley it is stated to nest in bird-houses, though less commonly than the Tree Swallow (Bailey, MS).

264.

***Riparia riparia* (Linnaeus)**

## BANK SWALLOW

A summer resident throughout the state, locally common or abundant. Reported from nearly all localities, in some places as rare and in others as abundant. Breeds in the Transition and Upper Sonoran zones in clay banks of rivers. Where found, the nests are liable to be in large colonies.

The migrations take place in May and August. Three years at Bozeman give an average of May 15, with the earliest date May 7, 1912 (Oberholser, 1917, p. 327). Another date is from Choteau, May 26, 1912. Fall dates are: Bozeman, August 28, 1912 (Oberholser, 1917, p. 328); Eight Mile Creek, Park County, August 24, 1908.

There are no records of the taking of eggs in the state. Young, not fledged were found on Great Porcupine Creek, August 10, 1873, and fledged young on the Yellowstone near Custer Creek, August 1, 1873 (Allen, 1874, p. 54). I dug out several nests in Teton County early in June, 1912, but found none that had been completed at that date.

265.

***Stelgidopteryx serripennis* (Audubon)**

## ROUGH-WINGED SWALLOW

A summer resident evidently throughout the state, but records in the eastern half are not numerous, and the bird is omitted from many lists in the western half. Explicit records are as follows: Gallatin County, one young bird taken at Hillsdale, August 22, 1888 (Richmond and Knowlton, 1894, p. 308); Miles City, May 30, 1902 (Hedges, coll. Univ. Montana); Flathead Lake, between August 22 and 30, 1897 (Elrod, coll. Univ. Montana); Gallatin County, common summer resident (Saunders, 1911a, p. 45); southwestern Montana (Deer Lodge, Jefferson, Silver Bow and southern Powell counties), summer resident (Saunders, 1912a, p. 30); Teton County, summer resident (Saunders, 1914a, p. 140); Pend Oreille River, Flathead Lake (Saunders, 1915b, p. 113); Belton, summer of 1915, seen up to August 8 (DuBois, MS). I have also seen this species in Park County.

Migration dates are as follows: Missoula, average of two years April 27, earliest April 25, 1915 (Oberholser, 1917, p. 329); Gregson, Silver Bow County, May 30, 1910; Silver Bow, May 21, 1911; Choteau, May 22, 1912. Fall dates

are: Missoula, August 28, 1915 (Oberholser, 1917, p. 330); Eight Mile Creek, Park County, August 24, 1908; Silver Bow, August 25, 1909; Gold Creek, Powell County, August 16, 1910.

I believe that this species has been pretty generally overlooked by most observers and mistaken for the Bank Swallow, and that it really is commoner than the Bank Swallow and fully as widely distributed in the state. It occurs at somewhat higher elevations, nesting in banks, in old burrows of the Kingfisher, or in burrows of its own. I have found a few pairs nesting with a colony of Bank Swallows, but the Rough-winged Swallow is more liable to nest singly or in colonies of only a few pairs. I have never opened a nest and know of no date for eggs in the state. Young of the year have been noted and secured at Flat-head Lake in August, 1897, and on July 23, 1914, and in Gallatin County, August 22, 1888.

266.

***Bombycilla garrula* (Linnaeus)**

## BOHEMIAN WAXWING

An abundant winter visitor throughout the state. Reported by all observers who have done work in winter months. Occurs in mountain valleys, on the prairies, and in the mountains. Comes into towns in large flocks, where it feeds on berries of the mountain ash. Occurs rarely in summer in mountains of north-western Montana, and probably breeds there.

The migrations take place in October and in March or April. Dates of fall arrival are as follows: Rock Creek, Park County, October 27, 1908; Mill Creek, Deer Lodge County, at 9,000 feet, September 14, 1909; Warm Springs Creek, Deer Lodge County, October 13, 1910; Lewistown, October 29, 1898 (Silloway, 1903a, p. 60); Kalispell, October 28, 1917 (Sloanaker, MS). Dates of spring departure are: Middle Creek, Gallatin County, April 30, 1909; Silver Bow County, March 29, 1910; Helena, March 17, 1911; Choteau, March 30, 1912; Bitterroot Valley, March 26, 1912, and April 5, 1913 (Bailey, MS).

Summer records are as follows: A young bird, newly fledged, taken at Chief Mountain Lake, in what is now Glacier National Park, August 19, 1874 (Cones, 1874b, p. 573). A pair seen on West Fork of Sun River, northern Lewis and Clark County, August 18 and 21, 1912, the female taken August 21 (Saunders, 1912g, p. 224). A few seen in mountains of Ravalli County at 5000 feet, August 31, 1909 (Bailey, MS). Waxwings seen at Belton in the breeding season were believed to be of this species (DuBois, MS). Seen at Granite Park, in Glacier Park in summer (F. M. Bailey, 1918, p. 62).

267.

***Bombycilla cedrorum* Vieillot**

## CEDAR WAXWING

A common summer resident throughout the state. Reported by nearly all observers from all parts of the state. Nearly everywhere it is reported as common, but its numbers vary from year to year in a given locality. It is reported as not common in the Bitterroot Valley. Breeds in the Upper Sonoran and Transition zones, in cottonwood groves, willow thickets, and similar places.

Found in the prairie region, mountain valleys and in the lower mountain canyons.

The migrations take place in June and late August. Dates of spring arrival are as follows: Gallatin County, June 18, 1909; Choteau, June 23, 1912; Bitterroot Valley, June 8, 1911 (Bailey, MS). Fall departure: Mill Creek, Deer Lodge County, August 26, 1909; Gold Creek, Powell County, August 27, 1910; Traill Creek, Park County, August 24, 1908. Five years at Bozeman average September 16, with the latest September 29, 1912 (Oberholser, 1918, p. 222).

Nesting takes place most commonly in July, though it is often begun soon after the arrival of the species in June, and sometimes is delayed till August. There are numerous records of the nesting, the earliest being June 24, 1900, at Flathead Lake, the nest containing five eggs in which incubation had begun (Silloway, 1901a, p. 22), and the latest a set of eggs taken in the Rocky Mountains along the forty-ninth parallel, August 19, 1874 (Cones, 1874b, p. 574). In the average nest the eggs are laid during the first week in July, and the young are on the wing early in August. Nesting appears to be somewhat earlier on the west side of the divide than on the east side.

268.

**Lanius borealis** Vieillot

NORTHERN SHRIKE

A winter visitor throughout the state, never very common, and irregular in numbers from year to year. Found chiefly in the Transition zone, but may be seen in open country in the Canadian in migrations. Reported by nearly all observers who have done work in the winter months.

This species arrives in October and leaves about the first of April. Dates of arrival are: Custer County, October 16, 1906 (Cameron, 1908a, p. 49); Spring Hill, Gallatin County, October 6, 1908; Three Forks, October 17, 1909; Anaconda, October 23, 1910; Choteau, October 16, 1911; Kalispell, October 21, 1917 (Sloanaker, MS). Four years at Bozeman average October 27, with the earliest arrival October 19, 1913 (Oberholser, 1918, p. 287). Dates of departure are: Custer County, April 8, 1893, and March 26, 1904 (Cameron, 1908a, p. 49); Lewistown, March 22, 1902 (Silloway, 1903a, p. 61); Bozeman, March 31, 1909; Bridger Creek, Gallatin County, March 19, 1911. Three years at Bozeman average March 30, latest April 3, 1912 (Oberholser, 1918, p. 287).

269.

**Lanius ludovicianus excubitorides** Swainson

WHITE-RUMPED SHRIKE

A common summer resident of eastern Montana, ranging westward to the mountain valleys. Common in the eastern part of the state, becoming rarer westward. The westernmost localities where it occurs are Gallatin County (Richmond and Knowlton, 1894, p. 307), Teton and northern Lewis and Clark counties (Saunders, 1914a, p. 140), Rocky Mountains, along northern border (Cones, 1874b, p. 576), at Helena, and at Missoula.

The migrations seem to be irregular. The species arrives on its breeding grounds early in April, but migrant birds have been seen in the foothills of the

mountains, where the species does not breed, until the middle of May. There are few records to show just when fall migration takes place. Dates of spring arrival on breeding grounds are as follows: Helena, April 9, 1911; Choteau, April 9, 1912; Dutton, April 3, 1915 (DuBois, MS); Missoula, March 19, 1916 (Oberholser, 1918, p. 289). Dates of migration in the foothills are from Gallatin County, May 2 to 15, 1909 (Saunders, 1911a, p. 46). The only fall occurrences on record are from Gallatin County, in the mountains in September (Richmond and Knowlton, 1894, p. 307), from Fort Keogh, three seen in the fall of 1892 (Thorne, 1895, p. 218), and from Missoula, October 12, 1915 (Oberholser, 1918, p. 290).

The few nesting records in the state show that breeding takes place in June. A nest with six eggs was found on the Missouri between Forts Union and Benton June 18, 1862 (Cooper, 1869b, p. 295). A nest with eggs was found in Custer County, June 16, 1898, and one with young, June 25, 1894 (Cameron, 1908a, p. 49).

270. ***Lanius ludovicianus gambeli* Ridgway**

CALIFORNIA SHRIKE

A shrike identified as belonging to this subspecies was taken near Anaconda, May 14, 1911 (Saunders, 1912a, p. 30, and 1915a, p. 102).

271. ***Vireosylva olivacea* (Linnaeus)**

RED-EYED VIREO

A common summer resident at low elevations probably throughout the state. Occurs in migration throughout the Transition zone, but breeds only at elevations lower than 4500 feet in the southern part of the state, and below 4000 feet in the northern. Breeds chiefly in cottonwood groves east of the continental divide. West of it, it breeds in a mixed broad-leaf and coniferous forest, composed of cottonwood, tamarack and Douglas fir, with a smaller proportion of other species.

The migrations take place in May and June, and in August. Four years' observations in northwestern Montana give May 24 for an average, and May 19, 1896, the earliest date of arrival (Cooke, 1909b, p. 81). Other dates are: Custer County, May 23, 1893, and May 16, 1899 (Cameron, 1908a, p. 49); Miles City, May 23, 1902 (Hedges, coll. Univ. Montana); Anaconda, June 3, 1911; and Choteau, May 24, 1912. The only fall dates I have are from Bozeman, August 30, 1908, and Logan, Gallatin County, August 25, 1909. The Bozeman and Anaconda records are in localities where the species does not breed, the rest where it evidently does.

The only records of the nesting of this species are at Flathead Lake, where two nests with fresh eggs were found June 16, 1900 (Silloway, 1901a, p. 21).

272. ***Vireosylva gilva gilva* (Vieillot)**

EASTERN WARBLING VIREO

A summer resident of extreme eastern Montana, breeding in cottonwood groves in the Transition and Upper Sonoran zones. Probably intergrades west-

ward with *swainsoni*. Recorded as follows: Fort Keogh, breeds, young taken July 24 (Thorne, 1895, p. 218); Custer and Dawson counties, common migrant, noted May 16, 1899 (Cameron, 1908a, p. 49); Miles City, six skins dated from May 11 to June 8, 1902 (Hedges, coll. Univ. Montana). The last mentioned specimens have recently been compared by Dr. Bishop and myself with birds in the former's collection. They are typical of the eastern race.

273. ***Vireosylva gilva swainsoni* (Baird)**

WESTERN WARBLING VIREO

A common summer resident throughout the western part of the state, intergrading eastward, in the prairie region, with *gilva*. Breeds in cottonwood groves of the prairie region and mountain valleys, and in aspen groves of the mountains, in the Transition and Canadian zones. Occurring up to 7000 feet in the southern part of the state, and to 6500 in the northern. Reported by all observers, and one of the commonest summer birds in the mountains, where it is particularly characteristic of the aspen groves.

The migrations take place in May and August, the species arriving about the middle of May at low elevations, but in the mountains often not until June. At Columbia Falls, three years give May 16 for the average and May 14, 1895, the earliest (Cooke, 1909b, p. 80). Other dates are Bozeman, June 1, 1909; German Gulch, Silver Bow County, May 28, 1910; Bozeman, May 28, 1911; Bitterroot Valley, May 6, 1911 (Bailey, MS). Fall dates are: Bozeman, August 10, 1908, and August 16, 1909; Gold Creek, Powell County, August 27, 1910; Belton, August 27, 1915 (DuBois, MS).

Nesting takes place in June and July. The earliest nest on record is one at Flathead Lake containing three fresh eggs June 15, 1900. Another at this same locality contained three young June 23, 1900 (Silloway, 1901a, p. 19). The latest nest I have record of is one on Little Pipestone Creek, Jefferson County, which contained four eggs July 13, 1910.

274. ***Lanivireo solitarius cassini* (Xantus)**

CASSIN VIREO

A summer resident in the northwestern part of the state, west of the continental divide, occurring rarely in migration east of the divide in the mountains. Breeds chiefly in the Transition, in Douglas fir and tamarack forests. Records: First reported from the state from Columbia Falls (Cooke, 1909b, p. 168), where the average arrival is April 28, the earliest April 26, 1895, and a date of fall migration, September 12, 1895. Breeds at Flathead Lake commonly (Saunders, 1915b, p. 111). A nest at Yellow Bay, Flathead Lake, found partly built June 22, 1916. The young flew July 25 (Sloanaker, MS). Taken at 6000 feet near Corvallis, September 10, 1909, by Vernon Bailey (Bailey, MS). Several seen on Willow Creek, Powell County, September 12 and 13, 1910 (Saunders, 1912a, p. 30). One seen on the West Fork of the Sun River, east of the continental divide, September 3, 1912 (Saunders, 1914a, p. 141).

275. **Lanivireo solitarius plumbeus** (Coues)

## PLUMBEOUS VIREO

Occurs rarely in the Big Horn Mountains and perhaps in other similar places in the southern part of the state. Noted in small numbers August 30, 1878 (McChesney, 1879, p. 2386). This bird is reported as *Virco solitarius*, but the statement that it is the pale variety, and the measurements given, too large for either *solitarius* or *cassini*, as well as the locality, point to *plumbeus* as the proper identification.

276. **Mniotilta varia** (Linnaeus)

## BLACK AND WHITE WARBLER

A rare migrant in the eastern part of Montana. Three records only: Great Falls, September 18, 1889 (Chapman, 1907, p. 41); Miles City, May 21, 1902 (Hedges, coll. Univ. Montana); and Lake MacDonald (F. M. Bailey, 1918, p. 62).

277. **Vermivora ruficapilla gutturalis** (Ridgway)

## CALAVERAS WARBLER

One record. One taken at Yellow Bay, Flathead Lake, August 6, 1912, by Silloway, now in the collection of the University of Montana (Saunders, 1916c, p. 86).

278. **Vermivora celata celata** (Say)

## ORANGE-CROWNED WARBLER

A summer resident of the mountains in the western half of the state, ranging throughout the state in migrations. Common westward, and rather rare as a breeding bird in the more eastern parts of the mountains. Breeds in the Transition and lower Canadian zones. On the east side of the divide the species is characteristic of the aspen groves, but on the west side it is found in second growth of shrubs on cut or burned over land. Breeding records are as follows: Flathead Lake, nest and five eggs, with female bird, secured June 11, 1906 (Silloway, 1907, p. 54). This is the only record of nesting, but the bird is summer resident in Deer Lodge, Jefferson, Silver Bow and Powell counties (Saunders, 1912a, p. 30), in Teton and Lewis and Clark counties (Saunders, 1914a, p. 141), and in Gallatin County (Saunders, 1913a, p. 116, and Landwall, MS).

In migration this species is found throughout the state. Records in spring migration are as follows: Knowlton, May 27, 1907 (Cameron, 1908a, p. 50); Fort Keogh, April and May (Thorne, 1895, p. 218); Miles City and vicinity, nine specimens, May 4 to 9, 1902 (Hedges, coll. Univ. Montana); Gallatin County, May 8, 1909; German Gulch, Silver Bow County, May 28, 1910; Anaconda, May 27, 1911; Dupuyer Creek, Teton County, May 30, 1912. Fall migration: Gallatin County, September 2 and 15, 1890 (Richmond and Knowlton, 1894, p. 307); Mill Creek, Deer Lodge County, September 4, 1909.

If the subspecies *orestera* should later be accepted, the birds mentioned here will belong to two forms, *celata*, migrating through the eastern part of the state.

and *orestera*, migrating in the eastern part and breeding in the western (see Oberholser, 1905, p. 243).

279. ***Vermivora celata lutescens* (Ridgway)**

LUTESCENT WARBLER

A migrant in western Montana, probably chiefly, if not entirely, west of the continental divide. This form is reported from Columbia Falls, where five years give an average spring arrival of May 5, the earliest April 30, 1897 (Cooke, 1904a, p. 42). A fall date in this same locality is September 12, 1895 (Chapman, 1907, p. 88).

280. ***Vermivora peregrina* (Wilson)**

TENNESSEE WARBLER

A rare summer resident of northwestern Montana, evidently breeding locally. This form was found at Flathead Lake in the summer of 1904, when a male was taken June 29, a female was observed with nesting material July 3, and other males were heard in song until the end of July (Silloway, 1905a, p. 21). This bird occurs in migration in the eastern part of the state. Five were taken at Miles City, May 13 to 21, 1920 (Hedges, MS).

281. ***Dendroica aestiva aestiva* (Gmelin)**

YELLOW WARBLER

An abundant summer resident throughout the state. Reported by all observers, from all parts of the state. Breeds in the Upper Sonoran and Transition zones, in the prairie region and in the mountain valleys, and sometimes in the lower mountain canyons. Breeds in cottonwood groves, willow thickets, and similar habitats.

Arrives in the spring in May and leaves in August. The average date of arrival at Great Falls is May 16, and the earliest May 11, 1891, according to Chapman (1907, p. 115). There is an earlier date of arrival recorded from Great Falls, however, May 9, 1887 (Williams, 1888a, p. 16). Other records of spring arrival are: Sedan, Gallatin County, May 19, 1909; German Gulch, Silver Bow County, May 28, 1910; Silver Bow, May 21, 1911; Choteau, May 22, 1912; Bitterroot Valley, May 27, 1910; May 21, 1911; and May 18, 1913 (Bailey, MS); Dutton, May 26, 1915, and May 21, 1916 (DuBois, MS). Fall dates are: Great Falls, September 13, 1899 (Chapman, 1907, p. 115); Bozeman, August 25, 1908; Logan, Gallatin County, August 25, 1909; Gold Creek, Powell County, August 26, 1910; Choteau, August 18, 1911.

The nest has been found and recorded frequently. All records, however, are in June and early July, and there is no indication of more than one brood. The earliest nest is one which I observed at Choteau. It was found with three eggs June 11, 1912. Two of the eggs hatched June 21, the third being infertile. The young were full grown and left the nest June 28. The latest record is that of a young bird just out of the nest July 4, 1912, at Choteau. Other records are all between these two dates.

282. ***Dendroica coronata* (Linnaeus)**

## MYRTLE WARBLER

A migrant in eastern Montana, not found west of the prairie region. Fort Keogh, common in spring (Thorne, 1895, p. 218); Great Falls, one taken May 9, 1887 (Williams, 1888a, p. 16); Custer and Dawson counties (Cameron, 1908a, p. 50); Lewistown, common migrant, taken April 26, 1903 (Silloway, 1903a, p. 63); Terry, four years' average May 6, earliest May 2, 1894 (Chapman, 1907, p. 143). Three specimens, Tusler, April 27, 1902; Fort Keogh, May 4, 1902, and Miles City, May 3, 1902 (Hedges, coll. Univ. Montana).

283. ***Dendroica auduboni auduboni* (J. K. Townsend)**

## AUDUBON WARBLER

A common summer resident in all mountainous parts of the state, and a migrant probably throughout the state, though records are not very common from the prairie region. Breeds in all the mountain ranges, to the most eastern, and may also breed in pine hills in the extreme eastern part of the state. Reported by all observers in mountainous regions. Breeds in evergreen forests in the Canadian zone, and locally in the Transition. Appears indifferent to the different types of evergreen forest, being equally common in pine, fir or spruce. The only records from extreme eastern Montana are from Little Pumpkin Creek, April 23, 26 and 27, 1900, and from Fort Keogh, May 25, 1902 (Hedges, coll. Univ. Montana). This species breeds in the pine hills of Harding County, South Dakota (Visser, 1911, p. 15), and therefore should be expected to breed in similar places just across the Montana border, such as in the Long Pines of Carter County.

Migration dates, beside those given above, are as follows: Spring, average at Great Falls, April 29; average at Columbia Falls, April 23 (Cooke, 1904a, p. 65); Bridger Creek, Gallatin County, May 9, 1909; Big Hole River, May 6, 1910, Anaconda, May 1, 1911; Choteau, May 12, 1912; Bitterroot Valley, May 4, 1910, May 12, 1911, April 28, 1912, April 27, 1913 (Bailey, MS). Fall: Leaves northern Montana about October 10 (Cooke, 1904a, p. 66); Bozeman, October 17, 1908; Pipestone Creek, Jefferson County, September 30, 1909.

A nest was found in the Big Horn Mountains at an elevation of 6500 feet, June 17, 1880. It contained five eggs advanced in incubation (Merrill, 1881, p. 205). A number of nests have been found at Flathead Lake, the earliest with five eggs June 1, 1906 (Silloway, 1906, p. 109), and the latest with newly hatched young July 2, 1900 (Silloway, 1901a, p. 17).

284. ***Dendroica castanea* (Wilson)**

## BAY-BREASTED WARBLER

One taken at Big Sandy May 24, 1903, by Eugene Coubeaux (Cooke, 1904a, p. 74).

285. ***Dendroica striata* (J. R. Forster)**

## BLACK-POLL WARBLER

A migrant in eastern Montana, found only in the prairie region of the

state, and so far reported only in spring. Recorded as follows: Fort Keogh, common in May (Thorne, 1895, p. 218). Regular migrant in Fergus County, May 13 and 23, 1903 (Silloway, 1903a, p. 64). Great Falls, average of three years May 19, earliest May 18, 1892 (Chapman, 1907, p. 96). Choteau, common May 22 to 25, 1912 (Saunders, 1914a, p. 141).

286. ***Dendroica virens* (Gmelin)**

BLACK-THROATED GREEN WARBLER

One seen on the Teton River below Collins, June 4, 1916 (DuBois, MS). While this is a sight record only, the species is easily identified, and Mr. DuBois was previously acquainted with it. I expect that sooner or later most of the eastern warblers will be found to occur occasionally in the prairie region of the state in migrations.

287. ***Dendroica townsendi* (J. K. Townsend)**

TOWNSEND WARBLER

A common summer resident of northwestern Montana, west of the continental divide. This species has been found in the following localities: Columbia Falls (Cooke, 1904a, p. 91); Flathead Lake (Silloway, 1901a, p. 69); Belton (DuBois, MS); and Glacier National Park, where I observed it in the summers of 1914 and 1915. It has also been found during migration in extreme eastern Montana, in Custer County and at Great Falls, as detailed below.

Migration dates are as follows: Average arrival at Columbia Falls, May 7, earliest May 4, 1897; Great Falls, May 28, 1890 (Cooke, 1904a, p. 90); Custer County, May 18, 1894, and May 11, 1896 (Cameron, 1908a, p. 50). Fall departure: Columbia Falls, August 17, 1895 (Cooke, 1904a, p. 91); Belton, August 27, 1915 (DuBois, MS).

The nest has been found twice at Flathead Lake. The first, found July 15, 1903, contained five well grown young, which were afflicted with parasites (Silloway, 1903b, p. 299). The second nest was found June 2, 1906, and contained five eggs advanced in incubation (Silloway, 1906, p. 110).

288. ***Dendroica palmarum palmarum* (Gmelin)**

PALM WARBLER

One recorded in migration. Great Falls, September 18, 1889 (Chapman, 1907, p. 112).

289. ***Seiurus aurocapillus* (Linnaeus)**

OVEN-BIRD

A rare summer resident in the pine hills of extreme southeastern Montana. One male taken July 23, 1888, at Fort Keogh (Thorne, 1895, p. 218); Miles City, four specimens from May 18 to 31, 1902 (Hedges, coll. Univ. Montana); nesting in the Long Pine Hills, young seen July 20, 1910 (Visser, 1911, p. 15). While this last is published in a list of the birds of Harding County, South Dakota,

Mr. Visher has written me that it pertains to a locality across the border in Montana.

290.                    ***Seiurus noveboracensis notabilis*** Ridgway

GRINNELL WATER-THRUSH

A summer resident in the western half of the state, chiefly along mountain streams in the upper Transition zone. Evidently breeds in dense willow and alder thickets, bordering streams that are swampy in character. Rare in most places. Occurs as a migrant, very rarely in eastern Montana.

Records in migration: Columbia Falls, average of five years, May 20, earliest May 18, 1895 (Cooke, 1904a, p. 106); one juvenile taken at Fort Keogh, September 12, 1889 (Thorne, 1895, p. 218); Custer County, May 24, 1905 (Cameron, 1908a, p. 50); Bozeman, May 30, 1909; German Gulch, May 16, 1910; Gold Creek, August 20, 1910; Chief Mountain Lake, and west of Sweet Grass Hills, obtained August 12, 1874 (Cones, 1874b, p. 567); Billings, August 12, 1900 (Jones and Dawson, 1900, p. 30).

Records in breeding season: Rare summer resident, Gallatin County (Saunders, 1911a, p. 46); one taken at Swan Lake, July 10, 1903 (Silloway, 1903b, p. 303); seen on the Boulder River near Bernice, Jefferson County, in June, 1911; rare but regular breeder in the Bitterroot Valley, feeding young July 12, 1916 (Bailey, MS).

291.                    ***Oporornis tolmiei*** (J. K. Townsend)

MACGILLIVRAY WARBLER

A common summer resident of the western half of the state, ranging east to the easternmost mountains, and occurring occasionally in migrations to the more eastern parts of the state. Breeds in the Transition zone in clumps of willow and alder, wild rose or other shrubs, mainly in moist situations along the foothills or lower mountain canyons. The easternmost points where it is known to breed are Fergus County (Silloway, 1903a, p. 64) and the Musselshell River (Allen, 1874, p. 52). The easternmost records in migrations are from Fort Keogh, May 25, 1902 (Hedges, coll. Univ. Montana) and Miles City, August 17 and 22, 1919 (Hedges, MS).

The migrations take place during the latter half of May and in August. The average date of arrival at Great Falls is May 28, and an early arrival at Columbia Falls is May 19, 1885 (Cooke, 1904a, p. 115). Other dates are as follows: Bozeman, May 27, 1909, and May 29, 1911; Choteau, May 23, 1912; Corvallis, May 19, 1913 (Bailey, MS). Fall dates are: Rocky Mountains, August 23, 1874 (Cones, 1874b, p. 569); Belton, August 30, 1915 (DuBois, MS).

This species nests in June and July, evidently sometimes raising two broods. A nest and five eggs, advanced in incubation, were found at Flathead Lake, June 14, 1900 (Silloway, 1901a, p. 14), and young were seen flying June 30, 1901 (*ibid.*, p. 34). A nest and four eggs were found at Belton, June 30, 1914, and another with fresh eggs July 6, 1915; young were noted on the wing July 8, 1916 (DuBois, MS).

292.

***Geothlypis trichas occidentalis* Brewster**

## WESTERN YELLOWTHROAT

A very common summer resident in the western half of the state, east to the western part of the prairie region. Apparently rare in the more eastern part of the prairie region, and occurring there only in migration. Breeds throughout the Transition zone, on the prairies, and in the mountain valleys and foothills. Nests in thickets of willow, wild-rose and other similar shrubs, in moist places along streams. The breeding range of the Western Yellowthroat in Montana is almost exactly coincident with that of the MacGillivray Warbler, both being found east to Fergus County and the Musselshell River, but the Yellowthroat is much commoner at low elevations in valleys, and much less common in the mountain foothills. In many localities, however, the two species are found together.

The migrations take place in May and September. At Great Falls and Columbia Falls the Western Yellowthroat arrives during the second week in May (Cooke, 1904a, p. 119). Other dates are: Sedan, Gallatin County, May 21, 1909; Silver Bow, May 21, 1911; Choteau, May 19, 1912; Bitterroot Valley, May 20, 1911, May 12, 1912, and May 28, 1913 (Bailey, MS). The only fall date I have is from Gold Creek, September 21, 1910. In eastern Montana, where it occurs only in migration, it has been taken at Fort Keogh in spring (Thorne, 1895, p. 218).

While this species undoubtedly nests very commonly, there is only one record of the taking of eggs in the state. This pertains to a set of four fresh eggs taken at Flathead Lake, June 29, 1901 (Silloway, 1901a, p. 34). I believe that this date is a little later than that of the average nest, for I have noted young out of the nest commonly early in July, and found one such young bird, at Homestake, Jefferson County, in late June.

293.

***Icteria virens longicauda* Lawrence**

## LONG-TAILED CHAT

A common summer resident in eastern Montana, occurring rarely also westward to the western limits of the state. It is common only in the eastern part of the prairie region, and evidently becomes rare north of the Missouri River. West of the center of the state it occurs erratically, being found for a year or so in certain localities, but not persisting there. In the eastern part of the state it is evidently found chiefly in the Upper Sonoran zone, but in the western part it sometimes occurs in the Transition. It evidently breeds in thickets of shrubs, such as wild-rose, thorn and gooseberry. The western limits of its common range are Fergus County (Silloway, 1903a, p. 65) and the Musselshell River (Allen, 1874, p. 52). Records west of this point are as follows: Selish (now Ravalli), Missoula County, June 16, 1900, beginning nesting (Silloway, 1901a, p. 70); Big Fork, Flathead Lake, summer of 1903 (Silloway, 1904a, p. 12); Gallatin Valley, seen a number of times, one season only (Lundwall, MS); and Collins, Teton County, two, June 4, 1916 (DuBois, MS).

Spring migration takes place in late May. About May 25 in Custer and Dawson counties (Cameron, 1908a, p. 51). Specimens from Miles City are dated May 25 and 28, 1902 (Hedges, coll. Univ. Montana). There are no dates on record later than July, and, therefore, nothing to indicate when the fall migration takes place.

Nesting begins in June. A nest containing three eggs and a cowbird's was found in Custer County, on the Yellowstone River, June 11, 1894 (Cameron, 1908a, p. 51). A nest with four eggs was found between Forts Union and Benton, June 19, 1860 (Cooper, 1869b, p. 295).

294.

***Wilsonia pusilla pusilla* (Wilson)**

## WILSON WARBLER

A migrant in the eastern part of the state, probably mainly, if not entirely, in the prairie region. One male taken at Fort Keogh, May 19, 1889 (Thorne, 1895, p. 218). A breeding bird taken at Upper Two Medicine Lake, Teton County, August 5, 1914, is an intergrade between this form and *pileolata*.



Fig. 32. NEST AND EGGS OF PILEOLATED WARBLER. PIPESTONE BASIN, JEFFERSON COUNTY; JUNE 16, 1910. NEST BENEATH THE ROOTS OF A WILLOW.

295.

***Wilsonia pusilla pileolata* (Pallas)**

## PILEOLATED WARBLER

A common summer resident of the mountains in the western half of the

state, and a common migrant in the mountain valleys and at the edge of the prairie region near the mountains. A rare migrant in the eastern part of the state. Breeds in the Canadian zone, in willow thickets along mountain streams or bordering mountain lakes. West of the divide the Pileolated Warbler breeds in arbor-vitae forests. The eastern limit of its breeding range, as far as known, is marked by Teton and Lewis and Clark counties in the northern part of the state (Saunders, 1914a, p. 142) and by Gallatin County (Saunders, 1911a, p. 47) and Park County in the southern part. The species has not been reported in the breeding season east of these points. The only records in eastern Montana are from Fort Keogh, September 22, 1900 (Hedges, coll. L. B. Bishop), and from Custer County, August 24, 1919 (Hedges, MS).

The migrations take place in late May and in August and September. In the valleys, this warbler is most conspicuous during the fall migration. It becomes very abundant about the middle of August, remaining so till the first cold weather, which comes about September 1, and stragglers are seen up to the middle of the month. Dates of spring arrival are: Great Falls, May 23, 1892 (Cooke, 1904a, p. 129); Bozeman, June 6, 1909; German Gulch, May 28, 1910; Anaconda, May 14, 1911; Choteau, May 25, 1912; Bitterroot Valley, May 20, 1913 (Bailey, MS); Belton, May 30, 1914; Teton River, May 28, 1915 (DuBois, MS). Fall dates are: Great Falls, August 17, 1889 (Cooke, 1904a, p. 129); Bear Canyon, Gallatin County, August 26, 1908; Mill Creek, Deer Lodge County, September 14, 1909; Willow Creek, Powell County, September 17, 1910; Willow Creek, Lewis and Clark County, August 28, 1911; West Fork of Sun River, Lewis and Clark County, August 26, 1912; Belton, September 15, 1915 (DuBois, MS).

The nest has been found twice in the state. One was discovered at Lake MacDonald, Missoula County, June 24, 1901, which contained four eggs advanced in incubation (Silloway, 1901a, p. 34). A nest with five eggs was found in Pipestone Basin, Jefferson County, June 16, 1910 (Saunders, 1910d, p. 199).

### ***Setophaga ruticilla* (Linnaeus)**

#### **REDSTART**

A summer resident throughout most of the state, but not reported from the Bitterroot Valley. Breeds in the Transition and Upper Sonoran zones, in dense thickets of willow and alder, particularly in the vicinity of water. Common at low elevations, rather rare above 4000 feet in the northern part of the state, and above 4500 in the southern part. Found throughout the Transition zone. About Flathead Lake, breeds in areas of mixed evergreens and broad leaf trees, such as cottonwood and birch, mixed with fir and tamarack.

Migrations take place in May and September. The average arrival at Terry is May 16, at Great Falls, May 21, and at Columbia Falls, May 24 (Cooke, 1904a, p. 138). Other dates are: Bozeman, May 27, 1909; German Gulch, May 28, 1910; Silver Bow, May 21, 1911; Choteau, May 22, 1912; Lewistown, May 17, 1903 (Silloway, 1903a, p. 65); Belton, May 30, 1914; Teton River, May 28, 1915, and May 21, 1916 (DuBois, MS). Fall dates are: Great Falls, September 14, 1889 (Cooke, 1904a, p. 138); Gold Creek, August 21, 1910.

Eight nests were found between Forts Union and Benton, June 19 to 22, 1860 (Cooper, 1869b, p. 295). Nests have been found frequently at Flathead Lake, where fresh eggs were taken as late as June 30, 1900, and nests with young found as early as June 28 (Silloway, 1901a, p. 13).

297.

***Anthus rubescens* (Tunstall)**

## PIPIT

A summer resident of high mountains in the northwestern part of the state, and perhaps of more southern ranges also. A very common migrant throughout the state in open grass areas of the prairie region and in mountain valleys. In the breeding season found only in the Alpine zone. Summer records are as follows: Two taken at Chief Mountain Lake, August 29, 1874 (Cones, 1874b, p. 558). Seen in snows at highest point of the Bridger Mountains (Grinnell, 1876, p. 643). Occurs commonly in the Alpine zone in Glacier National Park, about Sperry Glacier, Gunsight Pass, Blackfoot Glacier and other similar localities. In migration there are numerous records from all parts of the state.

This bird is common both in spring and fall migration, but perhaps more abundant in fall. Dates of spring migration are as follows: Helena, April 9, 1911; Anaconda, April 15 to May 20, 1911; Bitterroot Valley, April 24 to May 15, 1912 (Bailey, MS). Dates of arrival in fall: Big Creek, Park County, September 16, 1908; Mill Creek, Deer Lodge County, September 14, 1909; Pioneer, Powell County, September 11, 1910; Choteau, September 17, 1911. Dates of departure: Fridley, Park County, October 20, 1908; Three Forks, October 17, 1909; Anaconda, October 23, 1910; Choteau, October 1, 1911. An earlier date for fall arrival is Powder River, September 6, 1873 (Allen, 1874, p. 50).

There are no records of the finding of the nest of this species in Montana.

298.

***Anthus spraguei* (Audubon)**

## SPRAGUE PIPIT

A locally common summer resident in parts of the prairie region. Apparently most abundant just east of the easternmost mountain ranges in Teton, Cascade, and Fergus counties. Not reported by any observers in Custer and Dawson counties. Evidently prefers wet prairie lands, about the edges of alkaline ponds, or in hollows where ponds exist for a part of the year only. Not found in wet meadows where the grass is tall. Breeds mainly, and perhaps entirely, in the Transition zone. Records are as follows: Yellowstone and Musselshell rivers, rare on the Yellowstone, a nest with five eggs found (Allen, 1874, p. 50). Not found over most of the Missouri and Milk River regions, but taken at the head of Milk River, August 13, 1874 (Cones, 1874b, p. 559). Seen between Camps Lewis and Baker (Grinnell, 1876, p. 643). Great Falls, nesting just outside the Belt Mountains (Williams, 1882a, p. 62). Rare in summer (Silloway, 1903a, p. 66). Common summer resident in Teton and northern Lewis and Clark counties (Saunders, 1914a, p. 142).

Migration dates for this species are as follows: Great Falls, May 9, 1887, and May 8, 1885 (Williams, 1888a, p. 15); Choteau, May 23, 1912. There are

no definite dates of fall migration though it probably occurs in August and September.

The nest has been found in Fergus County, May 29, 1901 (Silloway, 1903a, p. 66); also one on the Yellowstone, cited above, for which the date is not given.

299.

***Cinclus mexicanus unicolor* Bonaparte**

DIPPER

A regular permanent resident, locally common, in the western half of the state. Breeds in the mountains of the Canadian and Upper Transition zones, along clear mountain streams, on rocks or under bridges, preferably in the vicinity of waterfalls. Has been reported from all the mountain ranges, east to the Belt Mountains (Williams, 1882a, p. 61), the Snowy Mountains (Silloway, 1903a, p. 66), the Big Horn Mountains (McChesney, 1879, p. 2385), and on Locate Creek, Custer County (Cameron, 1908a, p. 51). The last is not in a truly mountainous region, and it is the most eastern record in the state. The Dipper occurs sometimes in the valleys and in the prairie region in winter, as at Lewistown (Silloway, 1903a, p. 66), at Bozeman (Saunders, 1911a, p. 47), in the Bitterroot Valley (Bailey, MS), and at Race Track, Deer Lodge Valley, where I observed one October 30, 1910.

In the winter this species is not found in the same localities as in summer. Streams occupied during the summer are liable to be frozen in winter, the deep pools where the birds obtain most of their food in the nesting season being too still to remain open. In winter the Dipper prefers shallow rapids, rather than waterfalls and pools, the rapids keeping open throughout the cold months. The movement from summer to winter haunts takes place in October and March, and constitutes the only migration undertaken by the species.

Nesting begins in late May, and lasts until August, the birds probably raising two broods. The earliest nest I know of was half-built on May 19, 1909, on Bridger Creek, Gallatin County. This nest contained four eggs June 2, and five June 5, when I collected it. I have also found a nest in process of construction in Gallatin County as late as June 21, and young leaving the nest were seen July 20. At Trick Falls, Glacier National Park, birds were still feeding young on August 4, 1914.

300.

***Oreoscoptes montanus* (J. K. Townsend)**

SAGE THRASHER

A rare summer resident, found chiefly in the prairie region, but probably originally found throughout the state in suitable localities. Records indicate that the species is rarer today than it was when the earlier ornithological work was being done in the state, twenty years ago or more. There are but few records from points other than in the prairie region, and only one west of the continental divide. Explicit records are as follows: Seen at rare intervals between the Musselshell and Yellowstone (Allen, 1874, p. 49). Two on the Tongue River, August, 1890 (Thorne, 1895, p. 218). Abundant on the Yellowstone (Park County, between Livingstone and Gardiner) in 1873 (Grinnell, 1876, p. 642).

Although I rode through the last mentioned region a number of times in 1908 and 1909, I saw nothing of the Sage Thrasher there. Big Horn Mountains and on the road to Fort Ellis (McChesney, 1879, p. 2384). Gallatin Valley, two secured in 1888 (Richmond and Knowlton, 1894, p. 307). Common at Fort Custer, 1904 (Mearns, 1904, p. 21). Sedan, Gallatin County, June 8, 1909 (Saunders, 1911a, p. 47). Silver Bow, May 21, 1910 (Saunders, 1912a, p. 31). Southwestern Broadwater County, about five miles north of Three Forks, July 11, 1911 (Saunders, 1912f, p. 217). Each of these last three records pertains to a single male bird in song. The Silver Bow record is the only one west of the divide. Seen rarely north of Forsythe (Thomas, MS).

The nest has been reported once from the state. It was found at Fort Custer, July 2, 1885, when five eggs were collected by Bendire (Norris, 1888b, p. 162).

### 301. *Dumetella carolinensis* (Linnaeus)

#### CATBIRD

A common summer resident throughout the state. Breeds in the Upper Sonoran and Transition zones, in thickets of wild rose, gooseberry, thorn and other small shrubs. Reported by nearly all observers, and from all parts of the state.

The migrations take place in May and September. Spring migration dates are: Bozeman, May 27, 1909, and May 28, 1911; Choteau, May 23, 1912; Bitterroot Valley, May 31, 1910, May 29, 1911, May 26, 1912, and May 24, 1913 (Bailey, MS); Teton River, May 28, 1915 (DuBois, MS). Fall: Bozeman, September 13, 1908; Salesville, Gallatin County, September 5, 1910.

The nest has been found in Montana quite frequently. Nesting takes place in June and July. Nests were found between Forts Union and Benton about July 20, 1860 (Cooper, 1869b, p. 295). Eggs were found on Big Muddy Creek, June 22, 1874 (Cones, 1874b, p. 551). Several nests have been found at Flathead Lake, the earliest July 2, 1900 (Silloway, 1901a, p. 13), and the latest July 22, 1902 (Silloway, 1903b, p. 296), both containing eggs.

### 302. *Toxostoma rufum* (Linnaeus)

#### BROWN THRASHER

A common summer resident of extreme eastern Montana, ranging westward less commonly to the western limits of the prairie region. Not known in the mountain valleys. All observers in the extreme eastern parts of the state report this species as common. Its western limits are indicated by the following records: Fergus County, rare, but common at Deerfield (Silloway, 1903a, p. 67); Great Falls, two, May 9, 1887 (Williams, 1888a, p. 16); Collins, Teton County, one, June 6, 1915, and three, June 4, 1916 (DuBois, MS). In the southern part of the state it is common west to the Big Horn River (Mearns, 1904, p. 21), and I have received second hand information of its occurrence at Billings (though Mr. Thomas does not record it from this region), and even at Dillon, but the source of this information was indefinite.

The occurrence at Great Falls, cited above, is the only record which may indicate the date of arrival. The Brown Thrasher nests in June (Cameron, 1908a, p. 52); a nest was found between Forts Union and Benton, June 22, 1860 (Cooper, 1869b, p. 296).

303.

**Salpinctes obsoletus obsoletus** (Say)

## ROCK WREN

A common summer resident throughout the state. Breeds in the Upper Sonoran and Transition zones, in badlands and about the sides of prairie buttes in the prairie region, and in rocky situations about the foothills of the mountains in the western half of the state. Prefers arid rocks in regions that are more or less treeless. Occurs rarely in the Boreal zone in migration. Reported by nearly all observers.

The migrations take place in May and September. The species arrives about May 15 in Custer and Dawson counties (Cameron, 1908a, p. 53). Other dates are: Divide Creek, Silver Bow County, one seen April 13, 1910, not common till May 1 (Saunders, 1914a, p. 31); Traill Creek, Park County, May 14, 1909; Anaconda, May 20, 1911; Rattlesnake Butte, Teton County, May 27, 1912. Fall dates are: Deer Lodge County, September 8, 1909, two birds observed in rocks above timberline at 9000 feet; Willow Creek, Powell County, September 18, 1910.

There are several records of the finding of the nest of the Rock Wren in Montana, but none with definite date of nesting. A nest was found with eight eggs at Fort Benton about June 25, 1860 (Cooper, 1869b, p. 297). Young are full-feathered by July 3 (Cameron, 1908a, p. 53). I have observed young out of the nest on Fish Creek, Silver Bow County, July 10, 1910, and on Wild Horse Island, Flathead Lake, July 2, 1914.

304.

**Thryothorus ludovicianus ludovicianus** (Latham)

## CAROLINA WREN

Rare in the southeastern part of the state. Two obtained in May on the divide between Powder and Tongue rivers, and one in May and two in August at Lame Deer (Thorne, 1894, p. 218). Seen near Billings in 1918 (Thomas, MS).

305.

**Troglodytes aedon parkmani** Audubon

## WESTERN HOUSE WREN

A common summer resident over most of the state. Breeds in the Transition zone, in holes in trees, in groves of cottonwood or yellow pines, or in bird boxes and crevices of buildings about ranches and in towns. Rare in the southwestern part of the state, where it is not reported from Jefferson, Silver Bow, Deer Lodge or Powell counties, nor from the Big Hole Basin. It is rare, though breeding, occasionally, near Stevensville, in the Bitterroot Valley (Bailey, MS). In all other parts of the state observers report it as common.

Spring migrations take place in May, but no data on fall migration are to be had. Exact dates are as follows: Sedan, Gallatin County, May 20, 1909; Cho-

teau, May 19, 1912; Great Falls, May 9, 1887 (Williams, 1888a, p. 16); Teton River, May 21, 1916 (DuBois, MS).

Nesting evidently begins in May and continues till August. There are few records of the taking of eggs, but frequent references to feeding of young, most of them in July. The earliest nesting record is that of a nest being built at Kalispell, May 13, 1916, and the latest, of young being fed, at Big Fork, August 14, 1916 (Sloanaker, MS). A nest with two eggs was found at Flathead Lake July 2, 1902 (Silloway, 1903b, p. 296), and birds were nest building on the Teton River, June 6, 1916 (DuBois, MS).

306. ***Nannus hiemalis pacificus*** (Baird)

WESTERN WINTER WREN

A summer resident of the northwestern part of the state, and perhaps more rarely farther south. Probably permanent resident at low elevations. Common northward. Breeds in dense spruce forests or forests of arbor-vitae on the west side of the divide, evidently nesting about stumps and logs on the ground. In migrations occurs rarely east of the mountains. Records: Summer resident of arbor vitae forests at Flathead Lake (Silloway, 1901a, p. 71). Seen in fall, Fergus County (Silloway, 1903a, p. 67). German Gulch, Silver Bow County, seen May 23, and secured May 24, 1910, and seen on Gold Creek, Powell County, August 15, 1910 (Saunders, 1912a, p. 31). A pair with young seen on Beaver Creek, northern Lewis and Clark County, June 29, 1911; and one seen on Birch Creek, Teton County, May 31, 1912 (Saunders, 1914a, p. 142). Seen at Belton, July 6 and September 18, 1915 (DuBois, MS). In 1915 this species was unusually common at Flathead Lake, several pairs with broods of six or seven young being observed about old logs in spruce woods at Yellow Bay, in July. Common in Glacier Park, where I have noted it in arbor-vitae forests west of the divide, and in spruce forests east of it.

307. ***Telmatodytes palustris plesius*** (Oberholser)

WESTERN MARSH WREN

A summer resident of the western part of the state, and perhaps also in the prairies eastward, in suitable localities. Local in distribution, and rare in most places. A common breeder in the Bitterroot Valley (Bailey, MS). Breeds at Swan Lake, where an unfinished nest was found July 26, 1902 (Silloway, 1903b, p. 303), and probably near Kalispell, where I observed a bird August 17, 1914. Seen at Chief Mountain Lake in August, 1874 (Coues, 1874b, p. 555). Taken in migration at Anaconda, April 18, 1911, two birds, and at Gold Creek, September 21, 1910 (Saunders, 1912a, p. 31). Breeds at Big Lake, Stillwater County (Thomas, MS), though it seems probable that these birds may belong to the more eastern form *iliacus*. One of the Anaconda birds referred to above was an intergrade with that subspecies.

Winters rarely. A bird that probably wintered in the vicinity of Helena was seen there March 12, 1911 (Saunders, 1912d, p. 108). Observed in the Bitterroot Valley, December 26, 1912 (Bailey, 1913a, p. 94), and November 20, 1911 (Bailey, MS).

308.

***Certhia familiaris montana* Ridgway**

## ROCKY MOUNTAIN CREEPER

A summer resident of the mountains in the western half of the state. Rather rare in summer, usually common in migrations, and occasionally wintering. Probably breeds in spruce forests in the Canadian zone, as it is usually seen in such localities, but there are no definite records of breeding in the state. The easternmost records of occurrence are from Fergus County (Silloway, 1903a, p. 67), Teton County (Saunders, 1914a, p. 142), and Park County, where I have observed it on Traill Creek in summer and in Tom Minor Basin in fall. It probably occurs farther east in the more eastern mountain ranges, particularly in the southern part of the state. An unusual record, the only one east of the mountains, in the prairie region, is from between Forts Union and Benton in June, 1860 (Cooper, 1869, p. 296). Migrations take place in April or late March, and in October or November. Dates of last ones seen in fall are as follows: Sour Dough Canyon, Gallatin County, November 10, 1908; Pipestone Creek, Jefferson County, October 14, 1909; Clear Creek, Deer Lodge County, October 9, 1910. Dates of spring arrival are: Middle Creek, Gallatin County, March 25, 1909; Divide Creek, Silver Bow County, April 26, 1910. Winter records of this species are: Gallatin County, February 17, 1909 (Saunders, 1911a, p. 48); Bitterroot Valley, two seen December 14, and two December 20, 1911 (Bailey, MS).

309.

***Sitta carolinensis carolinensis* Latham**

## WHITE-BREASTED NUTHATCH

A rather rare permanent resident of eastern Montana. Breeds in the pine hills. Recorded by most observers, but by none considered common. This subspecies evidently occupies all the eastern pine hills, west as far as the Little Horn River (McChesney, 1879, p. 2385). Most of the records given are for the summer months, others do not state whether this species is resident or not. I have found the bird in the Long Pine Hills of Carter County, however, in December, 1909. A series of six skins from the vicinity of Miles City, dated April 22 to 27, 1900 (Hedges, coll. Univ. Montana), have been recently examined by Dr. Bishop and myself. They belong undoubtedly to the eastern race, *Aculeata* was the race previously reported from this region (Thorne, 1895, p. 218). This was before *nelsoni* had been described. There are no records of the finding of the nest of the White-breasted Nuthatch in the state.

310.

***Sitta carolinensis nelsoni* Mearns**

## ROCKY MOUNTAIN NUTHATCH

A common permanent resident of the western half of the state. Breeds in coniferous forests in the Transition, Canadian and Hudsonian zones, showing preference for yellow pine forests in the Transition, about the foothills of the mountains, or for white-bark pine in the Hudsonian. Commoner in either of these places than in the Canadian zone forests. Nearly all observers mention

this species. It is rather rare in southwestern Montana, where the Transition yellow pine is not found, but it is quite common in the northwestern part of the state. Just where the eastern limits of its range are is not determined, but it is probable that this form breeds in all the true mountains, while *carolinensis* is confined to the pine hills of the prairie region.

There are no records of the taking of eggs of this subspecies in the state, but a nest containing newly hatched young was found in the Belt Mountains, June 25, 1880 (Williams, 1882a, p. 62). I have observed these birds feeding young at Flathead Lake in July, 1914.

311.

***Sitta canadensis* Linnaeus**

## RED-BREASTED NUTHATCH

A summer resident in the proper localities throughout the state. Breeds in yellow pine forests in the Transition zone, and is only found in summer where such forests occur. East of the mountains it evidently breeds in the pine hills, but of all the observers who have worked in this region, only two have found it. Seven skins, dated April 25 to 27, 1900, and May 18, 1902, are from the vicinity of Miles City (Hedges, coll. Univ. Montana). I noted this species in the Long Pine Hills, Carter County, November 29, 1909. In the mountains it is reported commonly. It breeds in Fergus County (Silloway, 1903a, p. 68), and at Helena (Crooker, 1893, p. 183), east of the divide. West of the divide where the elevations are lower and yellow pine commoner, the Red-breasted Nuthatch is found breeding in a larger area. It is reported breeding in Powell County (Saunders, 1912a, p. 31), at Flathead Lake (Silloway, 1901a, p. 72), at Belton (DuBois, MS), and about Lake MacDonald in Glacier National Park. West of the divide it is occasionally found in winter.

The migrations take place in April and May, and in September and October. In southwestern Montana it migrates through the Canadian zone in the mountains in regions where it is not known in summer. It sometimes occurs during migrations in the prairie region, when not far from the mountains. Dates of migration in regions where it does not breed are as follows: Arrival in fall: Bridger Creek, Gallatin County, September 7, 1908; Pipestone Basin, October 2, 1909. Departure in fall: Cinnabar Basin, Park County, October 24, 1908. Spring arrival: Sour Dough Canyon, Gallatin County, April 16, 1909; Divide Creek, Silver Bow County, April 18, 1910. Spring departure: Bozeman, May 25, 1909. Records in the prairie region are: Choteau, May 25, 1912 (Saunders, 1914a, p. 143); Dutton, June 18, 1917 (DuBois, MS).

In 1919 a great flight of these birds occurred in the prairie region in August. The probable cause of this flight was the forest fires which were very severe that year in the western part of the state. The birds were reported from Dutton by DuBois, and from Miles City by Hedges. In the former locality they were seen on the open prairie miles away from trees, where they climbed over the sides of ranch buildings and on fence posts. The Pygmy Nuthatch was found with the Red-breasted at Miles City, and large flights of crossbills of both species were reported. It is perhaps significant that all these species were birds breeding in yellow pine forests.

The nest of the Red-breasted Nuthatch has been found near Helena (Crooker, 1893, p. 83), and at Flathead Lake, where I found two nests where birds were feeding young late in July, 1915. Young out of the nest were noted at Belton, July 15, 1914 (DuBois, MS).

312.

***Sitta pygmaea pygmaea* Vigors**

## PYGMY NUTHATCH

A permanent resident of western Montana, evidently in the Transition zone, in the yellow pine forests of the foothills. Reported as common only from Ravalli County. Apparently more numerous years ago than now. In 1860 this species was reported as common to the eastern base of the Rocky Mountains (Cooper, 1869a, p. 74), and later it was reported from Prickly Pear Canyon, now in Lewis and Clark County (Cooper, 1869b, p. 298). Since then it has been reported as a common resident in the foothills of Ravalli County (Bailey, MS); it was included in the Fergus County list by Silloway (1903a, p. 68), who, however, merely quotes Cooper, adding no observations of his own. A single specimen has been taken on Wild Horse Island, Flathead Lake, July 2, 1914 (Saunders, 1915b, p. 112). Mr. Kittredge informed me by letter that he has met this species but once in western Montana, at Thompson Falls, but I was unable to obtain the date of this record.

In 1919 this species occurred at Miles City with the great flight of Red-breasted Nuthatches. Of this species Mr. Hedges reports six seen August 24 and three taken; one seen August 26; and two, August 31. The birds were in cottonwood groves along the river. This same summer a single bird was reported as seen by Thomas in the Beartooth Mountains at 10,000 feet, between July 14 and 17.

313.

***Penthestes atricapillus atricapillus* (Linnaeus)**

## EASTERN CHICKADEE

A common permanent resident of northwestern Montana, west of the continental divide. Occasionally found in southwestern Montana in winter. This is the form of Chickadee which breeds at Flathead Lake, and probably throughout northwestern Montana, south to about the vicinity of Missoula, and possibly also in the Bitterroot Valley. The birds are indistinguishable in appearance from those of the eastern United States, though geographically they are a separate race, occupying an intermediate region between the large, light colored *septentrionalis* to the eastward, and the smaller, dark colored *occidentalis* to the westward. This subspecies breeds in the Transition zone, in cottonwood groves along streams and in mixed broad-leaf and coniferous forest.

The nest has been found at Swan Lake, June 6, 1902, containing seven eggs advanced in incubation (Silloway, 1903b, p. 296). A chickadee belonging to this form was taken at Bozeman, November 26, 1908 (Saunders, 1911a, p. 48), indicating that it migrates southward to some extent in winter. While this individual might be considered an individual variant of *septentrionalis*, the resident form at Bozeman, that this is probably not the case is indicated by the fact that

the breast of the bird was blackened by living in burned timber. There are no burned timber areas near Bozeman at low enough elevations to be in the breeding area of *septrionalis*, and so far as my experience goes, this latter form breeds only in cottonwoods and willows that are not subject to forest fire, while the bird of northwestern Montana frequently breeds in evergreen timber, where burned areas are common.

314. ***Penthestes atricapillus septrionalis* Harris**

LONG-TAILED CHICKADEE

An abundant permanent resident through all of the state except the northwestern portion, where birds referable to typical *atricapillus* breed. Breeds in Transition and probably in the Upper Sonoran zone, in cottonwood groves, willow thickets, and, where such areas exist, in yellow pines of the mountain foothills and of the eastern pine hills. Found mainly in the prairie region and mountain valleys, but also in mountain canyons, where the proper habitat exists, up to the limit of the Transition zone. All observers report this species as common.

There is but one record of the taking of the eggs, ten fresh eggs having been secured July 28, 1918, near Billings (Thomas, MS). Birds were seen nest-building in the Bitterroot Valley, May 12, 1911 (Bailey, MS). I have seen young out of the nest in Jefferson County, June 29, 1910. The western limits of the range of this subspecies in the state are formed by the foothills just east of the continental divide in Teton County. It ranges south to the Northern Pacific Railroad, then west across the divide, roughly, by following the line of the railroad; then, either westward to the western border of the state through Missoula, or else south to exclude the Bitterroot Valley, and then west to the western border.

315. ***Penthestes gambeli gambeli* (Ridgway)**

MOUNTAIN CHICKADEE

A common permanent resident of the mountains in the western half of the state. Breeds in the Canadian and Hudsonian zones in fir or pine timber. All observers in mountainous regions report this species. The eastern limits of its range are found in the mountains of Teton County (Saunders, 1914a, p. 143) and of Fergus County (Silloway, 1903a, p. 68), and in the Big Horn Mountains (McChesney, 1879, p. 2385). West of the continental divide, in the northwestern part of the state, records of occurrence are comparatively few, not, I believe, because the species is rare, but mainly because most observations in the mountains of that region are confined to the Transition zone, and observations in the Canadian and Hudsonian zones are comparatively few.

In spring and fall this species is sometimes found in the mountain valleys in company with the Long-tailed Chickadee. This is a common occurrence in the Gallatin Valley. Dates of observation in the Gallatin Valley are as follows. Bozeman, October 2, 1908, October 16, 1910, and March 18, 1911; Spring Hill, October 8, 1908. This movement down to the valleys constitutes the only indication of a migration on the part of this species.

The nest has been found in the Big Horn Mountains, containing six young and an addled egg on June 18, 1880 (Merrill, 1881, p. 204); at Gold Run, in the Belt Mountains, a nest containing six spotted eggs, June 23, 1887 (Williams, 1888b, p. 108). Near Homestake, Jefferson County, three nests were discovered in late June, 1910. One contained five young, which flew when the nest was opened, June 26. In another, discovered June 21, the young left June 25 or 26. This second nest was in the same stump with a nest of the Red-naped Sapsucker, somewhat higher up in the stump and on the opposite side (Saunders, 1910d, p. 200).



Fig. 33. MOUNTAIN CHICKADEE APPROACHING NEST WITH FOOD. PIPE-STONE CREEK, JEFFERSON COUNTY; JUNE 25, 1910.

316. ***Penthestes hudsonicus hudsonicus* (J. R. Forster)**

HUDSONIAN CHICKADEE

A rare permanent resident of the mountains of northwestern Montana on both sides of the continental divide. Taken at St. Mary's Lake in 1888 by Grinnell (Rhoads, 1893, p. 332). A pair with six young out of the nest seen on the Teton River, August 1, 1911 (Saunders, 1914a, p. 143). Two seen on Spotted Bear Mountain, South Fork of the Flathead River, in the summer of 1915 (Betts, 1916, p. 163).

317. ***Penthestes rufescens rufescens* (J. K. Townsend)**

CHESTNUT-BACKED CHICKADEE

A permanent resident of northwestern Montana, west of the continental divide. Reported from the Coeur d'Alene Mountains in 1863 (Cooper, 1869a, p. 75). Common at Flathead Lake in 1915, and one secured June 30 (Saunders, 1916e, p. 86). Seen at Lake MacDonald, Glacier National Park, August 8, 1915. Several seen at Coalbank, South Fork of the Flathead River, in the summer of

1915 (Betts, 1916, p. 163). The fact that three of these four records are in the year 1915 suggests that this species was unusually common that year. Fifteen years' previous work in the vicinity of Flathead Lake had not revealed its presence. Mr. Kittredge informed me that he had met with the Chestnut-backed Chickadee on the Lolo and Blackfoot National Forests, and that it shows a preference for forests of western white pine, a tree that is uncommon in Montana, except as scattered individuals.

318.

***Regulus satrapa olivaceus* Baird**

## WESTERN GOLDEN-CROWNED KINGLET

A common summer resident of the mountains in the western half of the state. Breeds in spruce forests in the Canadian zone, and west of the divide in the Transition zone. Occurs rarely away from the mountains in migration. Winters rarely in valleys, and still more rarely in the mountains. The easternmost point where it is reported to breed is in the mountains of Fergus County (Silloway, 1903a, p. 68). In southern Montana I have noted it in Park County, west of the Yellowstone. It has been found once in migration in extreme eastern Montana in the Long Pine Hills of Custer County, November 16, 1909 (Saunders, 1916d, p. 204). This record may refer to the subspecies *satrapa*, as may other records east of the divide in the state. All Montana specimens that I have examined belong to *olivaceus*, but, except from Flathead Lake, they were not breeding birds.

The migrations take place in March and November. Three years at Columbia Falls give an average of March 24, with the earliest March 21, 1893 (Cooke, 1915c, p. 119). Other dates are: Sour Dough Canyon, Gallatin County, March 25, 1909; Divide Creek, Silver Bow County, April 22, 1910. Fall dates are: Columbia Falls, November 20, 1892 (Cooke, 1915c, p. 121); Sour Dough Canyon, Gallatin County, November 24, 1908; Dry Cottonwood Creek, Deer Lodge County, November 5, 1910. There is a record of this species in migration away from the mountains at Great Falls, rare in fall (Williams, 1888a, p. 15). Winter records are: Sour Dough Canyon, Gallatin County, February 26, 1909 (Saunders, 1911a, p. 48); Bitterroot Valley, five seen December 10, 1911, three, December 20, 1911, three, January 20, 1912, and the species common from January 20 till spring (Bailey, MS).

There is no doubt that this species breeds, as it is common all summer in the right places in the mountains, but the nest appears not to have been found and recorded. I have seen young out of the nest at Flathead Lake, July 23, 1914.

319.

***Regulus calendula calendula* (Linnaeus)**

## RUBY-CROWNED KINGLET

A common summer resident of the mountains in the western half of the state. Breeds in the Canadian and upper Transition zones in forests of Douglas fir on the east side of the continental divide, and in mixed forests of fir and tamarack on the west side. Reported by all observers in the mountains. The eastern limits of its breeding range are found in the mountains of Teton County to the

north (Saunders, 1914a, p. 143), the Belt Mountains (Williams, 1882a, p. 62), Fergus County (Silloway, 1903a, p. 68), and the Big Horn Mountains (Merrill, 1881, p. 204). Occurs in migration in the valleys and in the prairie region, in cottonwood groves, willow thickets and similar places. It is rare eastward on the prairies, however.

The migrations take place mainly in April and early May, and in September. Five years at Columbia Falls give an average of April 14, with the earliest date April 11, 1893 (Cooke, 1915c, p. 122). Other dates are: Gallatin County, May 7, 1909; Norton Gulch, Silver Bow County, March 31, 1910, a single male secured, but the species not common till April 12; Anaconda, April 20, 1911. Fall dates are as follows: Columbia Falls, two years' average October 10, latest October 12, 1896 (Cooke, 1915c, p. 125); Pipestone Creek, Jefferson County, September 26, 1909; Gold Creek, Powell County, September 20, 1910. Records of migration in the valleys and on the prairies are as follows: Fort Keogh, September, 1889, one (Thorne, 1895, p. 218). Fort Keogh, September 22, 1900, one male (Hedges, coll. Univ. Montana); Great Falls, May 9, 1887 (Williams, 1888a, p. 15); Choteau, May 25, 1912; Bitterroot Valley, April 20, 1911, May 12, 1911, and May 27, 1913.

A nest with eight eggs was found in the Big Horn Mountains, June 18, 1880 (Merrill, 1881, p. 204), and a nest with eight young at Flathead Lake, July 6, 1903 (Silloway, 1903b, p. 300).

320.

**Myadestes townsendi** (Audubon)

TOWNSEND SOLITAIRE

A regular summer resident of the mountains in the western half of the state, occurring more rarely in summer in the badlands of the eastern half. A rather rare winter visitor to the mountain valleys in the western half, and to the badlands of the eastern half. Breeds chiefly in the Canadian and Hudsonian zones, but also occasionally in the Transition. Found in the vicinity of rocks, either about rock cliffs and slides in the mountains, about morainal rocks below glaciers, or on the sides of canyons, on prairie buttes and in the badlands. Not reported by all observers, as the bird is rather rare in most localities and liable to be overlooked. This is particularly true in winter, or in late summer, when it is not in song, and is quiet and inconspicuous.

Summer records are as follows: Flathead Lake, two seen, one taken (Silloway, 1901a, p. 73). Six in July and one in August, 1892, at Lane Deer, Custer County (Thorne, 1895, p. 218). Gallatin County, in the mountains (Saunders, 1911a, p. 48). Southwestern Montana, common in the mountains (Saunders, 1912a, p. 32). Helena, July 11, 1911 (Saunders, 1912f, p. 219). Mountains of Teton and northern Lewis and Clark counties (Saunders, 1914a, p. 143). Rare breeder in the mountains of Ravalli County (Bailey, MS).

Records in migration, with dates, where given, are as follows: Fergus County, seen once in fall (Silloway, 1903a, p. 69). Arrivals in spring: Middle Creek, Gallatin County, May 1, 1909; Norton Gulch, Silver Bow County, March 15, 1910. Departure in fall: Traill Creek, October 10, 1908; Pipestone Creek, Oc-

tober 2, 1909; Warm Springs Creek, Deer Lodge County, October 14, 1910. Date of arrival at winter quarters in Custer County is September 9, 1906, and date of departure April 16, 1906 (Cameron, 1908a, p. 54).

Winter records are: Great Falls (Williams, 1890a, p. 98); Custer and Dawson counties, uncommon in winter in badlands (Cameron, 1908a, p. 54); winters regularly at Lombard, Gallatin County (Saunders, 1911a, p. 48); one at Bozeman, December 25, 1911 (Saunders, 1912h, p. 43); Bitterroot Valley at Corvallis, March 10, 1911, January 15, 1912, and December 26, 1912 (Bailey, MS).

There are no records of the finding of a nest in the state, although it is found all summer in the mountains and undoubtedly does breed there. I have seen it in the Glacier National Park in the summers of 1914 and 1915, a record that has not been previously published.

321. ***Hylocichla fuscescens salicicola*** Ridgway

WILLOW THRUSH

A regular summer resident of the western half of the state, occurring also, though rarely, in the eastern part, in migrations at least. Breeds in the Transition zone in thickets of willows along streams or about lakes, in the higher mountain valleys, and in the foothills and lower mountain canyons. Found breeding east to the Belt Mountains (Williams, 1890b, p. 292), to Fergus County (Silloway, 1903a, p. 69), and, in the southern part of the state, at least to Park County. The only migration records from the eastern part of the state are from Miles City and Fort Keogh, May 11, 18 and 25, 1902 (Hedges, coll. Univ. Montana) and from Custer County, August 28, 1919 (Hedges).

The migrations take place in late May or June, and in August or September. In the Belt Mountains the Willow Thrush arrives about May 15; the latest fall date is September 7. Other dates are: Bozeman, May 29, 1909; Pipestone Basin, Jefferson County, June 5, 1910; Anaconda, June 5, 1911; Choteau, June 7, 1912. Fall dates are: Bozeman, August 24, 1908; Gold Creek, August 27, 1910. In the Bitterroot Valley it arrived May 8, 1913 (Bailey, MS).

The nest has been found at Flathead Lake, June 29, 1900, and June 16, 1901, with eggs advanced in incubation in each case (Silloway, 1901a, pp. 12 and 33). A nest was found in Fergus County, June 8, 1901, with two eggs (Silloway, 1903a, p. 69).

322. ***Hylocichla aliciae aliciae*** (Baird)

GRAY-CHEEKED THRUSH

A migrant in extreme eastern Montana in May. Not known in fall. One taken at Fort Keogh, May 18, 1889 (Thorne, 1895, p. 218), and one in Dawson County, May 13, 1904 (Cameron, 1908a, p. 54).

323. ***Hylocichla ustulata swainsoni*** (Tschudi)

OLIVE-BACKED THRUSH

A common summer resident in the mountains throughout the western half of the state. Very abundant on the west side of the continental divide, where

it is the commonest species found on the shores of Flathead Lake. Breeds in the Transition and Canadian zones, in coniferous forests or in forests of conifers and broad-leaf trees mixed. Occurs in migration in the eastern part of the state, where it is regular but not common. The easternmost records of its breeding are from the Belt Mountains (Williams, 1890b, p. 292), the mountains of Fergus County (Silloway, 1903a, p. 69), and the Big Horn Mountains (McChesney, 1879, p. 2384).

The migrations take place in May and September. Dates of spring migration in portions of the state where it does not breed are as follows: Custer County, May 31, 1906 (Cameron, 1908a, p. 55); Miles City and vicinity, May 11 to June 7, 1902, thirteen specimens (Hedges, coll. Univ. Montana). In regions where this species breeds it arrives about the middle of May. Three years at



Fig. 34. NEST AND EGGS OF THE OLIVE-BACKED THRUSH. YELLOW BAY, FLATHEAD LAKE; JUNE 29, 1914.

Great Falls, give an average of May 15, and the earliest May 3, 1892; three years at Columbia Falls average May 19, the earliest May 17, 1896 (Cooke, 1907, p. 122). In the Belt Mountains it is said to arrive May 10 (Williams, 1890b, p. 292). Other dates are: Bozeman, June 1, 1909; Norton Gulch, Silver Bow County, May 16, 1910; Anaconda, May 14, 1911; Choteau, May 22, 1912; Teton River, May 28, 1915; and Dutton, May 27-June 4, 1916 (DuBois, MS). Fall migration takes place from September 1 to October 10 (Williams, 1890b, p. 294). The latest date at Columbia Falls is September 23, 1895 (Cooke, 1907, p. 124). The only other definite fall date I know of is from Sun River, September 4, 1912.

Nesting begins about the middle of June, and eggs may be found from then until the middle of July. The earliest date for a complete set of eggs is June 17, 1900 (Silloway, 1901a, p. 10), and the latest is July 19, 1902 (Silloway,

1903b, p. 295). The nest has been found frequently at Flathead Lake, where this bird is the commonest nesting species. East of the divide it is less common, and I know of no records of the finding of the nest in that part of the state.

324. ***Hylocichla guttata guttata* (Pallas)**

ALASKA HERMIT THRUSH

A migrant. One was taken at Dutton, May 13, 1917, by DuBois. The specimen was sent to me and later to the Biological Survey, where the identification was confirmed. Another was taken in Custer County, October 12, 1919, and identified by Dr. Bishop (Hedges, MS). This form may be not uncommon as a migrant, birds belonging to it doubtless having been mistaken for *auduboni* when not collected.

325. ***Hylocichla guttata auduboni* (Baird)**

AUDUBON HERMIT THRUSH

A summer resident of the mountains in the western half of the state. Apparently most abundant in southwestern Montana, and rare in other mountainous regions. Not reported from northwestern Montana west of the continental divide, but this may be because most observations there have been made at elevations too low for the occurrence of this bird. Breeds in the Canadian zone. Not known from the eastern half of Montana even in migrations. The easternmost points where it has been found are the Belt Mountains (Williams, 1890b, p. 292), and Park County, west of the Yellowstone River. This species is rare in Park and Gallatin counties, but quite common in Jefferson, Silver Bow and Deer Lodge counties. It is unknown from Flathead Lake, has been found in the Bitterroot Valley only once in migration, and is not known to breed in Teton County. It has been found in Glacier Park in late August (Coe, 1874b, p. 549).

The migrations take place in May and September. Dates of spring arrival are: German Gulch, May 25, 1910; Anaconda, May 17, 1911; Choteau, May 18, 1912; Corvallis, May 18, 1912 (Bailey, MS). Fall dates are: Gallatin County, September 11, 1890 (Richmond and Knowlton, 1894, p. 308); Pipestone Creek, Jefferson County, September 28, 1909; Gold Creek, September 10, 1910; and Sun River, September 12, 1912.

The nest has been found twice in the state. One with fresh eggs was discovered near Fort Ellis, Gallatin County, July 16, 1872 (Merriam, 1873, p. 674). A nest containing two eggs was found in the mountains of the Big Hole Basin, June 10, 1913 (Forrest, 1914, p. 197).

326. ***Planesticus migratorius propinquus* Ridgway**

WESTERN ROBIN

An abundant summer resident throughout the state. Reported by all observers from all parts of Montana. Breeds in the Upper Sonoran, Transition and Canadian zones. Found nesting in cottonwood groves and in willow thickets, about buildings in the prairie region and in the mountain valleys, in various

kinds of coniferous forests in the mountains, and in fact anywhere that there are trees, bushes or buildings to furnish nesting sites.

In migrations this species arrives the latter part of March, being one of the first to come in spring, though generally preceded by the Desert Horned Lark and Mountain Bluebird. Five years' observations at Columbia Falls give the average date of arrival as March 21, with the earliest March 15, 1896 (Cooke, 1907, p. 77). Other dates are: Bozeman, March 19, 1909; Norton Gulch, Silver Bow County, March 16, 1910; Helena, March 18, 1911; Lubec, Teton County, March 28, 1912; Polson, March 11, 1913; Highwood, March 21, 1914 (DuBois, MS). Fall migration takes place in October or November. Three years' observations at Columbia Falls give the average date of departure as November 14, with the latest November 20, 1892 (Cooke, 1907, p. 78). Other dates are: Tom Minor Basin, Park County, October 20, 1908; Pipestone Creek, Jefferson County, October 23, 1909; Warm Springs Creek, Deer Lodge County, October 13, 1910; Choteau, October 29, 1911.

Nesting begins in May and continues till July, there being usually two broods. The earliest nest recorded was one at Corvallis, partly completed May 2, 1913. In this same locality another nest was found complete on May 4, 1913, and the first egg was seen May 12, 1913 (Bailey, MS). The earliest nest I have found was one at Choteau, partly complete on May 10, 1912. The earliest that I have seen any eggs was a nest with four fresh eggs at Bozeman, May 23, 1909. On Pipestone Creek, Jefferson County, I found a nest of this species containing five eggs, June 22, 1910. The latest nest I have record of was on Little Pipestone Creek, Jefferson County, and contained its first egg July 9, 1910, the set of four being complete July 13.

This species winters regularly in small numbers in the western half of the state, though there appear to be no winter records east of the mountains. Such records are most abundant west of the continental divide. Some of these are: Three Forks, February 12, 1910 (Saunders, 1911a, p. 49); Bozeman, December 25, 1911 (Saunders, 1912b, p. 41); Bozeman, December 24, 1912 (Lundwall, 1913, p. 43); Corvallis, Bitterroot Valley, February 20, 1912, and January 22, 1913; Hamilton, January 25, 1913 (Bailey, MS); Kalispell, December 26, 1916 (Sloanaker, MS).

327.

***Ixoreus naevius meruloides* (Swainson)**

NORTHERN VARIED THRUSH

A rare summer resident of northwestern Montana, west of the continental divide. Evidently breeds in the Transition or Canadian zones, in dense dark forests of arbor-vitae and spruce. There is one record for the species in migration in eastern Montana, when it was seen in large numbers along the Big and Little Horn rivers in August (McChesney, 1879, p. 2384).

The migrations evidently come early in spring, for the average arrival at Columbia Falls is April 1, and the earliest March 2, 1895 (Cooke, 1907, p. 166). There are no data on fall migration in the state.

At Flathead Lake and vicinity this species has been met with a number of

times. Fledglings were found there June 25, 1904, and July 5, 1904. A nest and three half-incubated eggs were found July 12, 1904 (Silloway, 1905a, p. 19). At Swan Lake the species is said to winter and to nest very early (Silloway, 1903b, p. 303). Other records are: Lake Como, Ravalli County, one seen August 1, 1911, at 6,000 feet (Bailey, MS). Seen several times at Belton in summer of 1915 (DuBois, MS). One seen at Coalbank, South Fork of Flathead River, in the summer of 1915 (Betts, 1916, p. 163). I saw this species, and heard one bird in song, at Belton and at Lake MacDonald, Glacier National Park, August 12, 1914. Occurs on the Lolo, Kootenai and Blackfeet National Forests (Kittredge, MS).

328.

***Sialia sialis sialis* (Linnaeus)**

## EASTERN BLUEBIRD

Occurs rarely in eastern Montana in summer or migrations. May breed. There are but four records at present: Mouth of Powder River, August 1, 1856 (Baird, 1858, p. 222); mouth of Milk River (Cooper, 1869a, p. 32); Cinnabar Basin, Park County, October 24, 1908, one seen (Saunders, 1910a, p. 80); Corvallis, Bitterroot Valley, March 10, 1913, one seen (Bailey, 1913b, p. 184). I suspect that the Eastern Bluebird is a regular, though rare, summer resident in extreme eastern Montana; the writings of Cameron on *Passerina amoena* (1908a, p. 43) suggest that this may have been the bird observed.

329.

***Sialia mexicana occidentalis* J. K. Townsend**

## WESTERN BLUEBIRD

A rare summer resident of western Montana, west of the continental divide, occurring still more rarely in migrations, east of it. There appear to be no previously published records of this species in Montana, other than the reference, "Breeds . . . east to . . . western Montana" (American Ornithologists' Union, 1910, p. 367). The late Prof. Cooke sent me the following data from the records in the Biological Survey: Hell Gate, spring of 1860, specimen in United States National Museum; Columbia Falls, June 28, 1895; Thompson Falls, July 29, 1895; Big Sandy, September 13, 1905; Corvallis, March 19, 1911. This species has been seen at Missoula in April, 1917 (Kittredge, MS).

330.

***Sialia currucoides* (Bechstein)**

## MOUNTAIN BLUEBIRD

A common summer resident throughout the state. Breeds in the Transition zone and less commonly in the Canadian. In the eastern part of the state breeds in the pine hills, farther west, in cottonwood groves, about ranch buildings, and in the more open types of coniferous forests in the foothills of the mountains. In the Canadian zone, it is sometimes found about the edges of mountain parks, but it is never as common at such elevations in Montana as it is in the Transition. About ranch buildings in the mountain valleys it is apparently increasing in numbers. It is rare about ranches in the prairie regions, because most of the

grass country of this region lies in the Upper Sonoran. It is common in this zone in migrations, however.

The migrations take place in March, and in October or November. The average date of arrival at Terry is March 25, the earliest, March 20, 1903; the average at Columbia Falls is March 23, with the earliest, March 9, 1895 (Cooke, 1907, p. 205). Other dates are: Spring Hill, Gallatin County, March 19, 1909; German Gulch, Silver Bow County, March 10, 1910; Helena, March 12, 1911; Lubee, March 28, 1912; Polson, March 10, 1913; Bitterroot Valley, March 4, 1910, March 14, 1911, March 11, 1912, and February 26, 1913 (Bailey, MS). Fall migration dates are: Columbia Falls, November 6, 1896 (Cooke, 1907, p. 205); Cinnabar Basin, Park County, October 25, 1908; Pipestone Creek, Jefferson County, October 7, 1909. Fall dates for this species are rare, for the bird seems to become inconspicuous for some reason after early August. My records,



Fig. 35. MALE MOUNTAIN BLUEBIRD  
AT NEST, PIPESTONE CREEK, JEFF-  
ERSON COUNTY; JUNE 20, 1910.

kept daily for five years, show that the Mountain Bluebird was seen very seldom in September and October.

Nesting begins normally, early in May. I found a pair starting to build a nest in a cabin in Sunday Gulch, Silver Bow County, April 5, 1910, but the nest was not completed, and in that year the spring was exceptionally early. At Choteau birds were building nests on May 10, 1912, and the first egg was laid May 14. I have seen birds feeding young in Bozeman by May 29, 1911, and the first young are usually on the wing by June 15. Second brood nests begin the latter part of June. I have seen birds of one pair nest building June 21, 1910, when another pair were still feeding young of the first brood in the nest near-by. I have seen young just out of the nest late in July, but I believe the nesting is entirely over by early August, as the birds flock in the mountains about that time. They may often be found at high elevations, in the stunted timber of the Hudsonian zone, with the first cold snap in the first week of August.

This species is so early in its arrival in spring, that it seems as if it would some day be found to winter in the state, at least on the west side of the continental divide. There are no winter records, however, at present. I was told of a bluebird wintering near Choteau in the winter of 1911-12, but the information reached me second-hand, and I was unable to find out from whom it came or to verify it.

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The following two species have been added to the state list since the preceding matter was put in type.

331. ***Tringa canutus*** Linnaeus

KNOT

The mummified body of a bird of this species was found on Woody Island in Lake Bowdoin, October 4, 1915 (Wetmore, 1920, p. 451).

332. ***Falco islandus*** Brünnich

WHITE GYRFALCON

A bird of this species was taken on Shonkin Creek, near Shonkin, November 18, 1917, by G. B. Daniels. It is now mounted and in the collection of Mr. J. H. Bowles (Rathbun, 1920, p. 132).

RECENTLY EXTINCT SPECIES

***Ectopistes migratorius*** (Linnaeus)

PASSENGER PIGEON

Formerly an abundant migrant, evidently throughout the state, and probably breeding in the northern mountains. Records of this species are as follows: Above the mouth of the Yellowstone, August 8, 1856 (Baird, 1858, p. 600). Seen almost every day along the Upper Missouri, and across the divide, westward as far as Spokane Falls. Fed on service berries in Hell-Gate Canyon (Cooper, 1869a, p. 80). Small flocks seen high up the Yellowstone (Hayden, 1862, p. 172). A young bird secured at Chief Mountain Lake, August 23, 1874 (Cones, 1874b, p. 628). Seen on the Missouri in July (Grinnell, 1876, p. 650). These last records in 1873-74 are the latest from the state.

The fact that this species was once abundant in Montana, and is now unknown there, as elsewhere, seems to me strong evidence that its extinction was not due to man's unaided agency. At the time it disappeared in Montana the state was very thinly settled, and the human population there could not have been the cause of any appreciable lessening of its numbers. The Trumpeter Swan, the Sandhill Crane, and the Long-billed Curlew, while exterminated in many parts of their former range, still occur in Montana. Their extinction in many places is obviously due to man, and for the same reasons, the extinction of this species is not.

## INTRODUCED SPECIES

***Colinus virginianus virginianus* (Linnaeus)**

## BOB-WHITE

This species has been introduced in many places in the state, and in some localities the introduction has evidently been in a measure successful. Its introduction in the following places is on record: Utica, Fergus County (Silloway, 1903a, p. 70); Deer Lodge Valley (Saunders, 1912a, p. 24); between Kalispell and Flathead Lake (Silloway, 1901a, p. 43); in the Bitterroot Valley, where it was introduced in 1895 and is now common (Bailey, MS). In the low valleys west of the divide, the introduction of this species appears to have been generally successful; it is still keeping up its numbers, and perhaps increasing a little, around Kalispell, and it seems to be gradually spreading from there. I was surprised to find Bob-whites on Wild Horse Island, in Flathead Lake, in July, 1915. East of the continental divide, where the winters are much more severe, introductions do not appear to have been successful.

***Perdix perdix* (Linnaeus)**

## HUNGARIAN PARTRIDGE

The remains of a game bird that appeared to be of this species were sent to the Biological Station at Flathead Lake for identification in the summer of 1915. The bird was found dead near Plains, Sanders County, and had evidently flown against a wire. The remains were too badly mutilated and decayed to be identified with certainty, but the bird was undoubtedly an introduced species of game bird, and most probably the Hungarian Partridge.

***Phasianus* species?**

## CHINESE PHEASANT

A pheasant has been introduced in the Bitterroot Valley in 1905 and is now spreading. What species it is, is in question, but it is known locally as Chinese pheasant (Bailey, MS).

***Passer domesticus* (Linnaeus)**

## ENGLISH SPARROW

An abundant permanent resident nearly throughout the state at the present time. While the species is most common in towns that are on the railroads, it is also found in towns and about ranches that are considerable distances therefrom. In fact, in my experience, the railroads are less responsible for its introduction than the presence of grain. I have noted it in the following places that were not on railroads at the time, nor near them: Sedan, Gallatin County, 1908; Clyde Park, Park County, 1908; Salesville, Gallatin County, 1909; Choteau, Rynum, and ranches not near any town, Teton County, 1911 and 1912. As to the time of introduction, it seems to have begun about 1898. The English Sparrow was first seen at Terry, December 6, 1899 (Cameron, 1907, p. 404). It was

first noted in Fergus County in 1903, and at Helena in 1902 (Silloway, 1903a, p. 70). It reached Bozeman, somewhere between 1898 and 1908 (Saunders, 1911a, p. 42). It was stated to be absent in northern Montana in 1906 (Estabrook, 1907, p. 131). While it is entirely absent in wild country away from the haunts of man, it is by no means limited to cities, but is found at any cluster of ranch buildings, where grain is scattered in sufficient quantity to keep the birds alive.

## HYPOTHETICAL LIST

### **Marila marila** (Linnaeus)

#### SCAUP DUCK

Found in large numbers on Lake MacDonald in April, 1918 (F. M. Bailey, 1918, p. 53). This is evidently a sight record. While I do not doubt that this species occurs as a migrant in Montana, all the records based on specimens prove to be *M. affinis*, and the two species are too nearly alike to admit one to the list on sight identification only.

### **Somateria dresseri** Sharpe

#### EIDER

One shot at Glendive and identified by a Norwegian (Cameron, 1907, p. 250). Since Mr. Cameron evidently did not see this bird, and the name of the person who identified it is missing, the record is best considered doubtful.

### **Nycticorax nycticorax naevius** (Boddaert)

#### BLACK-CROWNED NIGHT HERON

Two birds seen close to the North Dakota line in June, 1917 (Thomas, MS). While this record is probably entirely correct, it seems best to leave the species on the hypothetical list until a specimen has been collected.

### **Himantopus mexicanus** (Müller)

#### BLACK-NECKED STILT

A rare summer resident of the Lake Basin, near Billings, breeding at Big Lake and at other places in the vicinity (Thomas, MS). This is rather far north of the known breeding range of this species. Mr. Thomas' observations were first made in 1917. He saw the birds again in 1918, and attempted to verify the record by securing a specimen, but was unable to do so. I have therefore placed the species in the hypothetical list, with the hope that the record will be verified in the near future.

### **Buteo borealis harlani** (Audubon)

#### HARLAN HAWK

Seen in Dawson County, August 25, 1905 (Cameron, 1907, p. 263). Since this subspecies has been taken in North Dakota, its occurrence in eastern Mont-

na would not be so unusual as might be implied from the range as given in the A. O. U. Check-List. This, however, is not a strong enough reason to admit to the state list a subspecies of so variable a bird as *B. borealis*, on sight identification alone, when so far from its normal range.

### ***Coccyzus americanus occidentalis* Ridgway**

#### CALIFORNIA CUCKOO

An egg, evidently that of a cuckoo, was picked up at Flathead Lake, July 5, 1900 (Silloway, 1901a, pp. 29-30). The bird itself has never been seen in that region. Since this subspecies has been found in northern Idaho, it may also occur rarely in northwestern Montana. At any rate it is more likely to have been a subspecies of *Coccyzus americanus* whose egg was found than *C. erythrophthalmus*, whose western limit in eastern Montana lies in a totally different faunal region.

### ***Xenopicus albolarvatus* (Cassin)**

#### WHITE-HEADED WOODPECKER

Seen several times in the Gallatin Canyon in summer and fall, a single bird at a time (Thomas, MS). This is rather far east of the normal range for this species. It is another case where we must wait for a specimen to verify the record.

### ***Archilochus colubris* (Linnaeus)**

#### RUBY-THROATED HUMMINGBIRD

Rare in Custer County. Nests said to have been found on the Powder River and in Miles City (Cameron, 1907, p. 390). This species was not observed by Mr. Cameron himself, but by others, who found the nests mentioned. Since *Stellula calliope* occurs in the region, it would be easy to mistake the two species, particularly the females, which would be liable to be the only ones seen about the nest.

### ***Aphelocoma woodhousei* (Baird)**

#### WOODHOUSE JAY

Seen at Billings, August 12, 1900 (Jones and Dawson, 1900, p. 32). It seems entirely possible to mistake the Pinyon Jay in the field for this bird, particularly if the observer had no previous acquaintance with either species. Mr. Thomas has been looking for the Woodhouse Jay about Billings at my request. He writes that the Pinyon Jay is common, and he supposed it was *woodhousei* till he collected one. This was exactly my own experience in Carter County in the winter of 1909. Until stronger evidence is presented, the case of the Woodhouse Jay must be considered not proved.

### ***Corvus cryptoleucus* Conch**

#### WHITE-NECKED RAVEN

One seen in Custer County, September 14, 1902 (Cameron, 1907, p. 393).

The bird was not seen by Mr. Cameron himself, and it is another case of sight identification of a bird far from its normal range.

***Carpodacus purpureus purpureus* (Gmelin)**

PURPLE FINCH

Two seen in the Belt Mountains in June, 1880 (Williams, 1882a, p. 62). I believe this is a mistake for *Carpodacus cassinii*. The birds could certainly not be easily separated in the field on sight alone.

***Passerherbulus lecontei* (Audubon)**

LECONTE SPARROW

Seen at Billings, August 12, 1900 (Jones and Dawson, 1900, p. 31). While this identification is probably correct, the species has never been taken in the state. It is an inconspicuous species, difficult to identify in the field, and this would be the extreme western limit of its range. The record had best wait for verification, before being admitted.

***Cistothorus stellaris* (Naumann)**

SHORT-BILLED MARSH WREN

One seen at Lombard, Gallatin County, April 23, 1909 (Saunders, 1911a, p. 48). While I feel just as sure that this record is correct as when I first published it, yet the bird is inconspicuous, and, in this case, it was out of its normal range. Under such circumstances I do not feel justified in placing it in the state list.

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Anticipating possible changes in the A. O. U. Check-List, the following bird names are inserted. These are subspecies, described, but not at present accepted, which have been found in Montana. These changes for the most part involve alteration of names rather than the addition of species. No attempt has been made to make this list complete.

***Ardea herodias treganzai*.** This is the form of Blue Heron occurring throughout all, or nearly all, of the state (Cooke, 1913a, p. 38).

***Otocoris alpestris enthymia*.** Breeds throughout the eastern part of the prairie region (Oberholser, 1918, p. 345).

***Molothrus ater artemisiae*.** This is probably the form throughout all of the state, with the possible exception of the northwestern region. Dr. Bishop has identified birds taken at Anaconda.

***Agelaius phoeniceus arctolegus*.** This form of Redwing is the one breeding over all of the state except probably the southwestern and northwestern portions.

***Loxia curvirostra bendirei***. This is the form of red crossbill found throughout the greater part of the state. All specimens that have been identified, from various parts of the state, belong to this subspecies.

***Melospiza melodia inexpectata***. A bird identified as of this race was taken in the Bitterroot Valley, near Corvallis, December 2, 1911 (Bailey, MS).

***Lanius borealis invictus***. Two birds from Gallatin County are identified by Dr. Bishop as of this race, and this is probably the form most commonly found in western Montana in winter.

***Vermivora celata orestera***. The breeding subspecies throughout all of Montana (Oberholser, 1905, p. 244).

***Regulus calendula cineraceus***. This is the form of Ruby-crowned Kinglet breeding in Colorado and British Columbia, as Dr. Bishop has recently written me, and is undoubtedly the form that breeds in Montana.

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## BETTS, N. DEW.

1916. Birds Seen in the Valley of the South Fork of the Flathead River, Montana. <Condor, xviii, pp. 161-163.

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## BISHOP, L. B.

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 Mentions (p. 116) an intergrade of *Sayornis s. saya* and *S. s. yukonensis* from the Musselshell River.  
 1901. Montana Redpolls. <Auk, xviii, p. 195.  
 Records the occurrence of *Acanthis linaria holboellii*, *A. l. rostrata* and *A. hornemannii exilipes* from the vicinity of Miles City.  
 1915. Description of a New Race of Savannah Sparrow and Suggestions on Some California Birds. <Condor, xvii, pp. 185-189.  
 Discusses the subspecies of *Ammodramus sandwichensis* found in Montana.

## BREWSTER, W.

1887. Three New Forms of North American Birds. <Auk, iv, pp. 145-149.  
 1891. Descriptions of Seven Supposed New North American Birds. <Auk, viii, pp. 139-149.

## CAMERON, E. S.

1891. [Letter in regard to migration of Swainson Hawks in Montana] <Ibis, 6th Series, iii, pp. 623-625.  
 1900. On the Migration of Phalaropes in Montana. <Ibis, 7th Series, vi, pp. 67-70.  
 1905a. Sabine's Gull in Montana. <Auk, xxii, p. 76.  
 1905b. Nesting of the Golden Eagle in Montana. <Auk, xxii, pp. 158-167, pls. ii-vi.  
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1907. The Birds of Custer and Dawson Counties, Montana. <Auk, xxiv, pp. 241-270, pls. v-xii, 2 maps; *idem*, pp. 389-406, pls. xv-xvi.
- 1908a. The Birds of Custer and Dawson Counties, Montana. <Auk, xxv, pp. 39-56.  
The last two form a very important local list, and include many detailed accounts of habits, nesting, etc., of many of the species listed.
- 1908b. Observations on the Golden Eagle in Montana. <Auk, xxv, pp. 251-268, pls. i-iv.
- 1908c. Changes of Plumage in *Buteo swainsoni*. <Auk, xxv, pp. 468-471.
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## CARY, M.

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## CASSIN, J.

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## CHAPMAN, F. M.

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1904. A New Grouse from California. <Bull. Amer. Mus. Nat. Hist., xx, pp. 159-162.
1907. The Warblers of North America, By Frank M. Chapman with the co-operation of other Ornithologists; pp. ix+306, 24 col. pls., 12 hft. pls.  
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## COALE, H. K.

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## COOKE, W. W.

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- 1904a. Distribution and Migration of North American Warblers. =U. S. Department of Agriculture. Division of Biological Survey—Bulletin No. 18, 142 pp.
- 1904b. The Migration of Warblers. <Bird-Lore, vi, pp. 21-24, 57-60, 91-92, 162-163, 199-200, with col. pls.
1905. The Migration of Warblers. <Bird-Lore, vii, pp. 32-35, 135-136, 203-206, 237-239, 275-278, with col. pls.
- 1906a. Distribution and Migration of North American Ducks, Geese, and Swans. =U. S. Department of Agriculture Biological Survey—Bulletin No. 26, 90 pp.
- 1906b. The Migration of Warblers. <Bird-Lore, viii, pp. 26-27, 61-62, 100-102, 168-169, 203-204, with col. pls.
1907. The Migration of Thrushes. <Bird-Lore, ix, pp. 32-34, 76-78, 121-125, with col. pls.
1908. The Migration of Flycatchers. <Bird-Lore, x, pp. 114-117, 166-170, 210-212, with col. pls.
- 1909a. The Migration of Flycatchers. <Bird-Lore, xi, pp. 12-14, 1 col. pl.
- 1909b. The Migration of Vireos. <Bird-Lore, xi, pp. 78-82, 118-120, 165-168, col. pls.
- 1909c. The Migration of North American Sparrows. <Bird-Lore, xi, pp. 254-260.
- 1910a. Distribution and Migration of North American Shorebirds. =U. S. Department of Agriculture, Biological Survey—Bulletin No. 35, 100 pp., 4 pls.

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- 1913b. The Migration of North American Sparrows. <Bird-Lore, xv, pp. 16-17, 104-107, 236-240, 301-303, 364-365, with col. pls.
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- 1914b. The Migration of North American Sparrows. <Bird-Lore, xvi, pp. 19-23, 105-106, 267-268, col. pls.
- 1915a. Distribution and Migration of North American Gulls and Their Allies. = Bulletin U. S. Department of Agriculture No. 292, 70 pp., 31 figs.
- 1915b. The Migration of North American Sparrows. <Bird-Lore, xvii, p. 18-19, 1 col. pl.
- 1915c. The Migration of North American Kinglets. <Bird-Lore, xvii, pp. 118-125, 1 col. pl.
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COOLEY, R. A.

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COOPER, J. G.

- 1868. The Fauna of Montana Territory. <American Naturalist, ii, pp. 596-600.
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- 1869b. Notes on the Fauna of the Upper Missouri. <American Naturalist, iii, pp. 294-299.
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COUES, E.

- 1874a. Birds of the Northwest: A Hand-book of the Ornithology of the Region Drained by the Missouri River and its Tributaries. =Miscellaneous Publications No. 3, U. S. Geol. Survey of the Territories. Washington; pp. xi+791.  
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- 1875. On the Breeding of certain Birds. <American Naturalist, ix, pp. 75-78.
- 1876. Eastward Range of the Ferruginous Buzzard . . . . <Bull. Nuttall Orn. Club, ii, p. 26.
- 1878. Field-Notes on the Birds Observed in Dakota and Montana along the Fortyninth Parallel during the Seasons of 1873 and 1874. =Bull. U. S. Geol. and Geog. Survey Terr., iv, no. 3, pp. 545-661.

A very important early paper, treating of birds along the northern border of Montana, from the eastern border to the mountains of what is now

the Glacier National Park. Contains many important records that are not published elsewhere.

CROFT, J. M.

1882. Notes from Florence Springs, M. T. <Orn. and Ool., vii, p. 107.

CROOKER, O. E.

1892. *Sitta Canadensis* in Montana. <Oologist, ix, pp. 183-184.  
Nesting near Helena.

DUBOIS, A. D.

- 1918a. An Albino Magpie. <Condor, xx, p. 189.  
1918b. A Late Nest of the Swainson Hawk. <Condor, xx, pp. 191-192.

DWIGHT, J., JR.

1890. The Horned Larks of North America. <Auk, vii, pp. 138-158, 1 map.

ELROD, M. J.

1902. A Biological Reconnaissance in the Vicinity of Flathead Lake. =Bulletin University of Montana No. 10, Biological Series No. 3.

The ornithological records in this publication are repetitions of those in other publications by Silloway, but the treatment by regions gives some original matter on local distribution of birds.

ESTABROOK, A. H.

1907. The Present Status of the English Sparrow Problem in America. <Auk, xxiv, pp. 129-134.

FORREST, E. R.

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A list of thirty-four species, the only one that has been published from this part of the state.

GRINNELL, G. B.

1876. Report of a Reconnaissance from Carroll, Montana, to the Yellowstone National Park and Return, by William Ludlow. Government Printing Office, Washington. >Zoology, pp. 640-655.  
1888. Some Autumn Birds of the St. Mary Lakes Region. <Forest and Stream, xxx, p. 365.

HARRIS, E.

1845. Description of a new species of *Parus* from the Upper Missouri. <Proc. Acad. Nat. Sci. Phila., ii, pp. 300-301.  
The original description of *Penthestes atricapillus septentrionalis*.

HASBROUCK, E. M.

1893. The Geographical Distribution of the Genus *Megascops* in North America. <Auk, x, pp. 250-264, 2 maps.

HAYDEN, F. V.

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HENSHAW, H. W.

1884. The Shore Larks of the United States and Adjacent Territory. <Auk, i, pp. 254-268.

HOWE, R. H., JR.

1901. The Migratory Movements of the Lapland Longspurs in North America. <Auk, xviii, pp. 396-397.

JENKINS, H. O.

1906. Variation in the Hairy Woodpecker . . . . <Auk, xxiii, pp. 161-171. 2 figs.

JONES, L., AND DAWSON, W. L.

1900. A Summer Reconnaissance in the West. =Wilson Bulletin No. 33, 39 pp.  
Contains lists of birds seen between Thompson Falls and Bozeman, about Billings, and between Billings and Miles City.

KITTREDGE, J., JR. [ET AL.]

1916. Christmas Bird Census. <Bird-Lore, xviii, p. 39.

LUNDWALL, N.

1910. The Bobolink in Montana. <Bird-Lore, xii, pp. 198-199.  
1912. Christmas Bird Census. <Bird-Lore, xiv, p. 42.  
1913a. Christmas Bird Census. <Bird-Lore, xv, p. 43.  
1913b. Additional Notes on Montana Bobolinks. <Bird-Lore, xv, p. 113.  
1914. Christmas Bird Census. <Bird-Lore, xvi, p. 48.  
1915a. Christmas Bird Census. <Bird-Lore, xvii, p. 45.  
1915b. Notes on the Dipper in Montana. <Bird-Lore, xvii, p. 386.  
1916. Christmas Bird Census. <Bird-Lore, xviii, p. 39.  
All from the vicinity of Bozeman.

MCCHESNEY, C. E.

1879. Report on the Mammals and Birds of the General Region of the Big Horn River and Mountains of Montana Territory. =Report of the Chief of Engineers, U. S. Army, Appendix SS3.  
The only list from this section of the state which includes birds found in the mountains.

MEARNS, E. A.

1893. A Study of the Sparrow Hawks . . . of America, with Especial Reference to the Continental Species . . . . <Auk, ix, pp. 252-270.  
1904. Birds of Fort Custer, Montana. <Condor, vi, pp. 20-21.  
A short list, the work of only one or two days observation, but containing several records of interest and importance.

MERRIAM, C. H.

1873. Sixth Annual Report of the U. S. Geological Survey of the Territories, by F. V. Hayden. >Birds, pp. 670-704.  
An important early list of birds, containing a number of records from Ft. Ellis and the Madison River.

MERRILL, J. C.

1880. Notes on the Winter Plumage of *Leucosticte tephrocotis*, Sw., and *L. tephrocotis* var. *littoralis*, Bd. <Bull. Nuttall Orn. Club, v, pp. 75-77.  
1881. Oological Notes from Montana. <Bull. Nutt. Orn. Club, vi, pp. 203-207.  
Nesting of the Red-naped Sapsucker, Pink-sided Junco, Audubon Warbler, Mountain Chickadee and Ruby-crowned Kinglet.  
1883. Nesting Habits of the Canada Goose . . . . <Bull. Nutt. Orn. Club, viii, pp. 124-125.  
1888. Notes on the Birds of Fort Klamath, Oregon. <Auk, v, pp. 139-146, 251-262, 357-366.  
1897-1898. Notes on the Birds of Fort Sherman, Idaho. <Auk, xiv, pp. 347-357; xv, pp. 14-22.

The last two papers contain a few references to occurrences of certain species in Montana.

N[ORRIS], J. P.

1888a. Curious Nests of the Sparrow Hawk. <Orn. and Ool., xiii, p. 106.

1888b. A Series of Eggs of *Oroscoptes montanus*. <Orn. and Ool., xiii, p. 162.

OERNDOLSER, H. C.

1898. Description of a New North American Thrush. <Auk, xv, pp. 303-306.

Original description of *Hylocichla ustulata almae*.

1905. The Forms of *Vermivora celata* (Say). <Auk, xxii, pp. 242-247.

Contains a number of Montana records, and the original description of *V. c. orestera*.

1907. A New *Agelaius* from Canada. <Auk, xxiv, pp. 332-336.

Original description of *Agelaius phoeniceus arctolegus*, containing Montana records of this subspecies.

1914. A Monograph of the Genus *Chordeiles* Swainson, Type of a New Family of Goatsuckers. =Bulletin 86, U. S. National Museum, pp. viii+123, 6 pls.

Cites a number of Montana records of different forms, and considers the western Montana bird *Chordeiles virginianus hesperis* rather than *henryi*.

1917. The Migration of North American Birds. Second Series. 1. Five Swallows. <Bird-Lore, xix, pp. 320-330, 1 col. pl.

A continuation of the papers by W. W. Cooke.

1918a. The Migration of North American Birds. Second Series. <Bird-Lore, xx, pp. 16-19, 219-222, 286-290, 345-349.

1918b. Notes on North American Birds. IV. <Auk, xxxv, pp. 62-65.

PYFER, A. M.

1897. The Nesting of Clarke's Nutcracker. <Oologist, xiv, pp. 100-101.

1898. Birds of Montana. <Oologist, xv, pp. 14-16.

A short list of birds observed in the vicinity of Salesville, in the Gallatin Valley.

RATHBUN, S. F.

1920. White Gyrfalcon (*Falco islandus*) in Montana. <Auk, xxxvii, p. 132.

RICHMOND, C. W.

1897. The Western Field Sparrow . . . . <Auk, xiv, pp. 345-347, 1 col. pl.

RICHMOND, C. W., AND KNOWLTON, F. H.

1894. Birds of South-central Montana. <Auk, xi, pp. 298-308.

An important list of birds found in Gallatin and Park counties in two summers' work.

RIDGWAY, R.

1898. New Species, etc., of North American Birds. —II. Fringillidae. <Auk, xv, pp. 319-324.

Descriptions of *Pinicola enucleator montana* and *Junco montanus* from Montana. Also contains record of *Pinicola enucleator alascensis* from the Bitterroot Valley.

RHOADS, S. N.

1893. The Hudsonian Chickadee and Its Allies . . . . <Auk, x, pp. 321-333.

RUST, H. J.

1917. An Annotated List of the Birds of Fremont County, Idaho, as Observed during the summer of 1916. <Condor, xix, pp. 29-43., 12 figs., one map.

SAUNDERS, A. A.

- 1909a. Christmas Bird Census. <Bird-Lore, xi, p. 35.  
Vicinity of Bozeman.
- 1909b. The Nesting of the Broad-tailed Hummingbird. <Condor, xi, p. 197.
- 1910a. The Bluebird (*Sialia sialis*) in Park County, Montana. <Condor, xii, p. 80.
- 1910b. The Singing of the Female Slate-colored Fox Sparrow. <Condor, xii, p. 80.
- 1910c. A Correction. <Condor, xii, p. 204.
- 1910d. Bird Notes from Southwestern Montana. <Condor, xii, pp. 195-204, 8 figs.  
Notes from the mountains of Jefferson and Silver Bow counties, containing records of the nesting of several species.
- 1911a. A Preliminary List of the Birds of Gallatin County, Montana. <Auk, xxviii, pp. 26-49, map.
- 1911b. Christmas Bird Census. <Bird-Lore, xiii, p. 41.  
Vicinity of Livingston.
- 1911c. The Virginia Rail at Helena, Montana, in Winter. <Condor, xiii, p. 108.
- 1912a. Some Birds of Southwestern Montana. <Condor, xiv, pp. 22-32, map.  
A local list for Jefferson, Deer Lodge, Silver Bow and southern Powell counties.
- 1912b. A Correction. <Condor, xiv, p. 108.
- 1912c. Some Changes and Additions to the List of Birds of Southwestern Montana. <Condor, xiv, p. 107.
- 1912d. The Western Marsh Wren Wintering near Helena, Montana. <Condor, xiv, p. 108.
- 1912e. Wilson's Snipe and Its Nest. <Bird-Lore, xiv, pp. 170-171.
- 1912f. A Horseback Trip across Montana. <Condor, xiv, pp. 215-220.
- 1912g. The Probable Breeding of the Bohemian Waxwing in Montana. <Condor, xiv, p. 224.
- 1912h. Christmas Bird Census. <Bird-Lore, xiv, pp. 42-43.  
Vicinity of Bozeman.
- 1913a. Additional Notes to the 'Birds of Gallatin County, Montana.' <Auk, xxx, p. 116.
- 1913b. A Study of the Nesting of the Marsh Hawk. <Condor, xv, pp. 99-104, 6 figs.
- 1913c. Some Notes on the Nesting of the Short-eared Owl. <Condor, xv, pp. 121-125, 1 fig.
- 1913d. An Unusual Nest of the Sora Rail. <Condor, xv, p. 128, 1 fig.
- 1913e. Christmas Bird Census. <Bird-Lore, xv, p. 43.  
Vicinity of Choteau.
- 1914a. The Birds of Teton and Northern Lewis and Clark Counties, Montana. <Condor, xvi, pp. 124-144, 10 figs.
- 1914b. The English Sparrow as Occurring in Northwestern Montana. <Condor, xvi, p. 183.
- 1914c. An Ecological Study of the Breeding Birds of an Area near Choteau, Mont. <Auk, xxxi, pp. 200-210.
- 1915a. The California Shrike in Montana:—A Correction. <Condor, xvii, p. 102.
- 1915b. A Summer at Flathead Lake, Montana. <Condor, xvii, pp. 109-115, 4 figs.
- 1915c. Harlequin Duck in the Glacier National Park, Montana. <Auk, xxxii, p. 225.
- 1915d. Changes and Additions to the 'List of the Birds of Gallatin County, Montana.' <Auk, xxxii, pp. 238-239.
- 1916a. A Note on the Food of the Western Robin. <Condor, xviii, p. 81.
- 1916b. Plumage of the Young Male Red-shafted Flicker <Condor, xviii, p. 82.
- 1916c. Additions and Changes to the Summer Birds of Flathead Lake, Montana. <Condor, xviii, pp. 85-86.
- 1916d. Additions to the Birds of Custer County, Montana. <Auk, xxxiii, pp. 203-205.

SHAW, W. T.

1893. The American Magpie. <Oologist, x, pp. 211-212.

SILLOWAY, P. M.

- 1900a. Notes on the Long-billed Curlew. <Condor, II, pp. 79-82.
- 1900b. Montana Magpies. <Oologist, XVII, pp. 89-91.
- 1901a. Summer Birds of Flathead Lake. =Bull. Univ. Montana, Biol. Series no. 1, Bull. no. 1, pp. 1-83, 16 pls.  
An important list of 88 species, with many notes on nesting habits.
- 1901b. Flathead Lake Findings. <Condor, III, pp. 4-7, 2 figs.  
Records the nesting habits of Wright Flycatcher and Audubon Warbler.
- 1901c. My Story of the Sharp-shinned Hawk. <Osprey, v, pp. 70-71.
- 1901d. An Outing for Owls' Eggs. <Condor, III, pp. 96-98.  
Records the nesting of the Western Horned Owl near Lewistown.
- 1902a. Some Experiences of 1901. <Condor, IV, pp. 31-34.  
Nesting habits of the Long-billed Curlew near Lewistown.
- 1902b. Notes of McCown's Longspur in Montana. <Osprey, VI, pp. 42-44.
- 1902c. The Holboell Grebe in Montana. <Condor, IV, pp. 128-131.  
Describes a nesting colony at Swan Lake, Flathead County.
- 1903a. Birds of Fergus County, Montana. =Bull. no. 1, Fergus County Free High School, Lewistown: pp. 1-77, many pls.  
An important local list, with many notes on migration and nesting.
- 1903b. Additional Notes to Summer Birds of Flathead Lake, with Special Reference to Swan Lake. =Bull. Univ. Montana, no. 18, Biol. Series no. 6; pp. 2+293-308, pls. LIII-LVII.
- 1903c. Notes on the Leucostictes—Gray-crowned and Hepburn's. <Wilson Bulletin, new series, x, pp. 1-4.
- 1903d. An Answer. <Condor, v, pp. 54-55.  
Answer to criticism, defending the collecting of eggs.
- 1903e. How to Study a Bird. Types of Nests of Birds. Bird Music in the Flathead Region. <Lectures at Flathead Lake. A Series of Lectures delivered at the University of Montana Biological Station at Flathead Lake, by the Staff of Instructors. Season of 1902. Bull. Univ. of Montana, Biol. Series no. 5, pp. 204-209, 234-241, and 275-281.
- 1904a. Afield at Flathead. <Condor, VI, pp. 12-14, 1 fig.  
Records, among other things, the Long-tailed Chat at Flathead Lake.
- 1904b. Extracts from Some Montana Note-books, 1904. <Condor, VI, pp. 148-150.  
Nesting of the Sora, Bartramian Sandpiper, Red-naped Sapsucker, Magpie and Bobolink near Lewistown.
- 1905a. Notes from Flathead, 1904. <Condor, VII, pp. 19-22, 1 fig.  
Among other notes, records the occurrence and probable nesting of the Tennessee Warbler at Flathead Lake.
- 1905b. The American Crossbill in Montana. <Condor, VII, pp. 174-176.
1906. Among the Flathead Birds. <Condor, VIII, pp. 109-110.  
The Nesting of Townsend Warbler.
1907. Stray Notes from the Flathead Woods. <Condor, IX, pp. 53-54.  
Nesting of the Orange-crowned Warbler, and occurrence of the White-crowned Sparrow.
1909. A Problem in Indeterminates. <Condor, XI, pp. 86-90, 3 figs.  
Nesting of the Long-billed Curlew, Short-eared Owl, Sharp-tailed Grouse and Lark Bunting at Lewistown.
1917. Some Interesting Birds of the Judith Basin, Montana. <Oologist, XXXIV, pp. 156, 158-170.

STANFORD, H. P.

1914. Willow Ptarmigan in Montana. <Auk, xxxi, p. 399.

THORNE, P. M.

1889. *Phalaropus lobatus* and *Phalaropus tricolor*. <Auk, vi, p. 336.  
1895. List of Birds Observed in the Vicinity of Fort Keogh, Montana, from July, 1888, to September, 1892. <Auk, xii, pp. 211-219.  
An important local list.

VISHER, S. S.

1911. Annotated List of the Birds of Harding County, Northwestern South Dakota. <Auk, xxviii, pp. 5-16.

This list contains a few records which, Mr. Visher has written me, were actually across the state border, in Montana, in the Long Pine Hills of Carter County.

[WADE, J. M.]

1881. Rare Finds. <Ornithologist and Oologist, vi, p. 44.  
An editorial based on a letter from J. C. Merrill.

WARREN, E. R.

1914. Harlequin Duck in Glacier National Park, Montana. <Auk, xxxi, p. 535.

WETMORE, A.

1920. The Knot in Montana. <Auk, xxxvii, p. 451.

WIED, PRINCE MAXIMILIAN VON.

1841. Reise in das Innere Nord-America in den Jahren 1832 bis 1834. Vol. II, pp. xxiv+688.

Contains the original description of *Cyanocephalus cyanocephalus* from the Marias River.

WILLETT, G.

- 1906a. Eggs of the Sage Grouse. <Condor, viii, p. 75.  
1906b. Peculiarities of Ducks in Nesting. <Condor, viii, p. 75.  
1907. Summer Birds of a Prairie Lake. <Condor, ix, pp. 105-106.  
An account of the water birds nesting at Lake Bowdoin, Phillips County. The only published account of this region, which is one of the most interesting in the state.

WILLIAMS, R. S.

- 1882a. Notes on Some Birds of the Belt Mountains, Montana Territory. <Bull. Nutt. Orn. Club, vii, pp. 61-63.  
1882b. Description of a Nest of the Water Ouzel. <Bull. Nutt. Orn. Club, vii, p. 118.  
1882c. The White-throated Swift Breeding on Belt River, Montana. <Bull. Nutt. Orn. Club, vii, pp. 122-123.  
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# COOPER ORNITHOLOGICAL CLUB

PACIFIC COAST AVIFAUNA  
NUMBER 14

## A DISTRIBUTIONAL LIST OF THE BIRDS OF MONTANA

WITH NOTES ON THE MIGRATION AND NESTING  
OF THE BETTER KNOWN SPECIES

BY

ARETAS A. SAUNDERS



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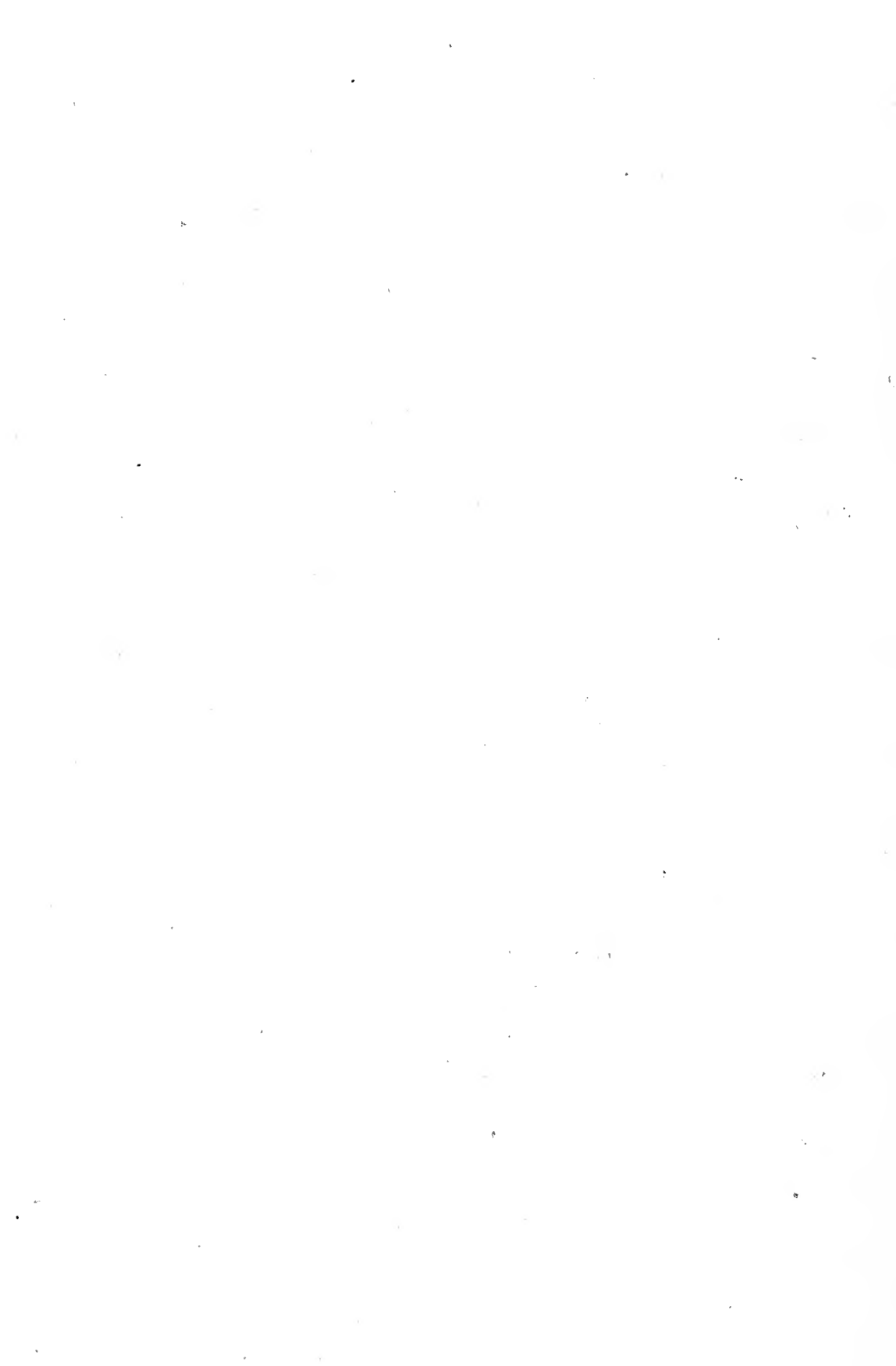
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